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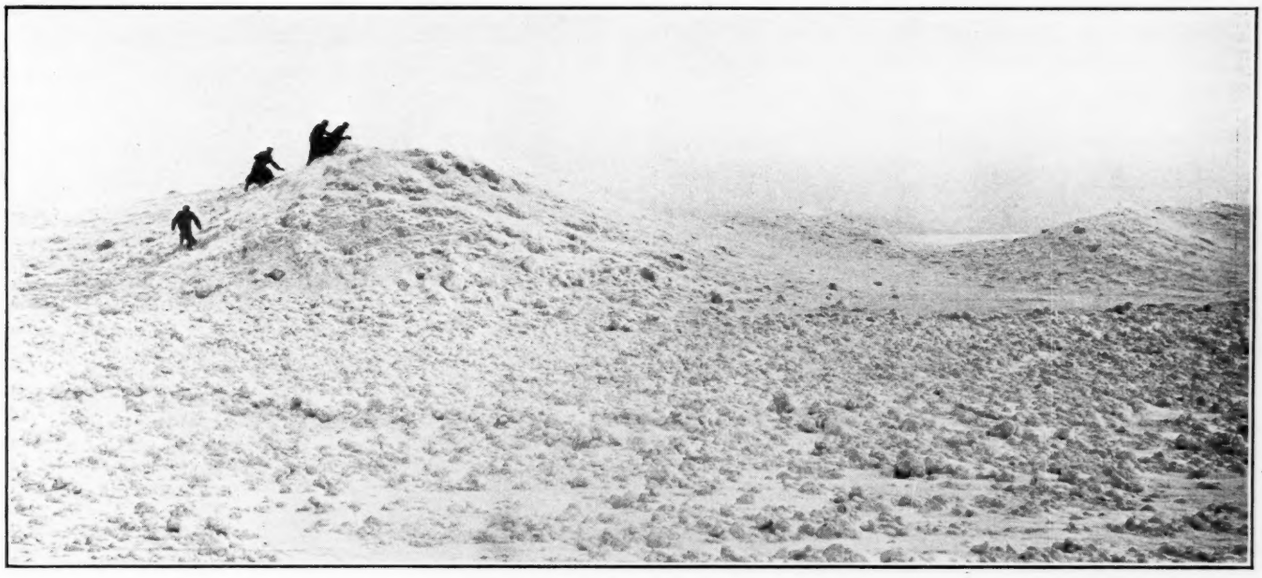


ICE MOUND IN LAKE, DIRECTLY OVER INTAKE

TORONTO WATERWORKS INTAKE TROUBLES

Six-Foot Steel Pipe Intake Stopped with Anchor Ice—Pipe Shifted by Ice—Later, Filled with Sand from Lake Bottom—Method of Cleaning—Difficulty Caused by Ice in Lake

IN 1895, when the city of Toronto, Ont., found it necessary to increase the water supply, the plan was adopted of locating an intake in Lake Ontario and obtaining lake water through this. Immediately south of the waterfront is Toronto harbor and bay, which is navigable for about half a mile from the shore, and for 1½ miles to 2 miles further south is shoal, there being a number of islands and a long bar and breakwater which furnish the southern protection to the harbor. The intake was located south of this shoal in water 65 feet deep and protected from any pollution from the harbor or the sewers discharging therein. It was proposed to construct the intake partly of steel pipe and partly in tunnel.

Between 1896 and 1898 2,357 feet of 6-foot steel pipe was laid from the intake to a crib on one of the islands known as the shore crib. For some reason nothing further was done in carrying out the plan until 1904, when a contract was let for 85 lengths of 6-foot steel pipe, completing the section from the intake to the south shaft of the tunnel which was proposed to complete the intake up to the pumping station. It was decided to tunnel for 5,087 feet under the bay for several reasons, among them the difficulty and cost of laying large pipe across the harbor at a depth which would not obstruct future deep-water navigation, the expense of anchoring the same so as to permit of its being safely emptied and examined for leaks, and the impossibility of keeping out of it, while being laid, the sewage-contaminated mud which covered the bottom of the harbor to a depth of three or four feet. This tunnel was begun in the spring of 1906, and was carried through rock for the entire distance. It has a horseshoe section, lined with three rings of brick on the arch and side walls and having an invert of 1:2:4 concrete. The tunnel was completed in the latter part of 1908 and the pumps began taking water from the lake through the tunnel and steel pipe on January 1, 1909.

Early last winter it was found that severe easterly storms and a change in the formation of the sandy lake bottom which was probably caused thereby had resulted in the sand piling up within two or three feet of the top of the intake, which is 20 feet high. This was remedied by placing a large cylinder on the top of the intake, raising the same 10 feet higher.

A short time previous to this City Engineer C. H. Rust had recommended that an additional intake be constructed, prob-

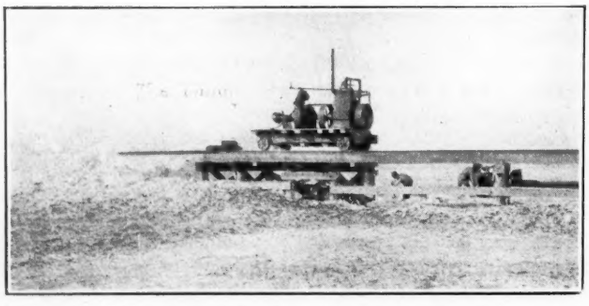
ably because, among other objections resulting from too small an intake, the heavy consumption caused too great velocity of water flowing into it. In December last it was found that, owing to some stoppage in the intake or pipe, it was impossible to obtain sufficient water through them to keep the pumps going. Investigation revealed the fact that the pipe had been completely stopped by anchor ice, which had evidently formed along the shore in shallow water and been driven off by the wind to the vicinity of the intake, where it had been sucked in with the inflowing water. This ice was removed in two or three hours and pumping resumed.

In February it was again found impossible to obtain sufficient water through the suction, which, in fact, appeared to have become completely stopped. An examination showed that a considerable length of the 6-foot steel pipe was completely choked with sand. As this difficulty could not be remedied in a few hours and it was necessary to continue the water

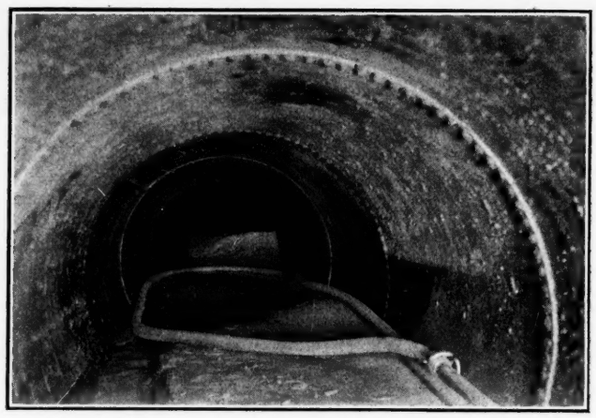
TYPICAL ICE BANKS, LOOKING WEST FROM INTAKE

supply, steps were immediately taken to let in a temporary supply of water from the bay. This was realized to be dangerous on account of the known pollution of the water of the bay, and it was realized that there was danger that typhoid fever would result from such use. The city already had an efficient system of applying hypochlorite, however, and especial pains and vigilance were exercised to sterilize the water by this means, and an outbreak of typhoid fever has been prevented.

Unfortunately, the entire lake along the shore was covered with a very heavy field of ice which prevented a thorough examination of the pipe for several days, there being an especially high mound of ice directly over the intake. When finally the authorities were able to reach and examine the intake they found that at a point about 600 feet from the shore a section of the pipe had risen from its bed and the flange had opened about 4 feet. It was thought probable that this had occurred in December. (Although no reason was suggested by our informant, Mr. Rust, it seems possible that this might have been caused by the partial emptying of the pipe during the trouble with anchor ice, thus increasing its buoyancy, which fact, combined possibly with a lessening of the depth of sand above the pipe due to the shifting of the bottom above referred to, may have resulted in a lifting of the pipe by flotation.) At a point 900 feet from the shore a section of pipe 150 feet in length had been carried out of line 20 feet at one end and 8 feet at the other. This Mr. Rust believed to have been the effect of the motion of a large and thick field of ice moved by a very heavy easterly gale.



CENTRIFUGAL PUMP OVER INTAKE

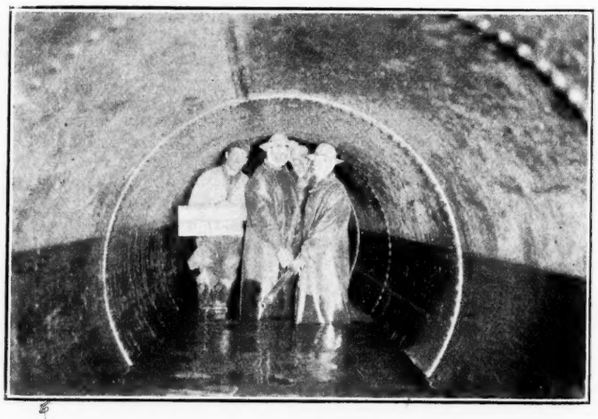


SAND PARTLY REMOVED FROM INTAKE

Steps were immediately taken to remove the sand from the intake pipe. This pipe follows practically the bottom of the lake, and thus slopes toward the intake crib. The method of removal adopted was to wash the sand down the pipe toward the crib, through which it was removed. One of the illustrations shows a centrifugal pump located on the ice over the intake, to be used in connection with this work. Another photograph shows the use of fire hose for loosening up and washing the sand toward the intake. Two or three weeks ago the pipe had not yet been entirely cleaned.

The work has been very difficult and arduous owing to the cold and rough weather. Three tugs, four divers, scows, etc., have been engaged constantly; but owing to the winter storms there have been some weeks during which it was possible to get in only about a total of 24 hours work.

These difficulties connected with lake intakes in northern climates should certainly be taken into consideration when considering or comparing proposed sources of supply where the alternative is between lakes and gravity supplies.



FLUSHING SAND TOWARD PUMP

CHEAPER STREET LIGHTING IN WICHITA

In his report for the year 1910 L. F. Means, Commissioner of Water and Lights of Wichita, Kan., states that the streets of that city are now illuminated with lamps giving a much superior light to that of previous years and at such a reduction in price as to enable the city to give an all-night service with many more lights than formerly, at a total expenditure less than in previous years. Formerly vapor lights were used, but in July of last year the Kansas Gas & Electric Company began a five-year contract substituting tungsten lamps for these. The same company also is supplying 117 electric arc lights of 2,000 candle-power for all-night service at $66 per year per light, the same price formerly paid for lamps extinguished at 1 a. m. The city is using 850 80-watt tungsten lights, in addition to which the same company is furnishing 146 100-watt tungsten lights, which are paid for by the steam railways which cross the city, which also pay for the electric arc lights.

CHICAGO STREET PAVING REPORT

Organization of Street Department Complete and Efficient—Specifications and Contracts Criticised—Concrete Foundations—Vehicle Tax

THERE has recently been published for distribution a report made to the Chicago Commission on City Expenditures last December by Samuel Whinery, of New York, on the general subject of the street pavements of that city. This report appears to have been made in a very fair and impartial spirit, a number of criticisms of present practice and recommendations being made therein, but the general tenor of the report being commendatory of the department. Concerning the nature of the work done Mr. Whinery states:

The organization in the department of the chief engineer of streets is quite complete and seems to be efficient. There are a large number of assistants and employees, but not more than are needed, with the possible exception of street inspectors. The system of blank forms in use is fairly complete, and the individual blanks for reporting and recording the progress and quality of the work and the quantity of materials used are sufficient, if properly use, for the pupose. It may be said, I think, that in this respect the Bureau is better and more intelligently equipped than those in most cities. Some of the methods and the procedure in carrying them into effect might be improved, and my impression is that the bookkeeping methods in the accounting department of the city, based upon this system of blank forms and reports, are not as complete and do not take note of details to the extent that they should. . . .

I had many opportunities to examine street foundation concrete in Chicago, both while it was being laid and afterwards, before it was covered by the pavement. I found it very generally to be of excellent quality, averaging better than in most cities. The materials were clean and of good quality and mixing (by machine) well done. . . .

Except in the matter of the oil used for the preservative treatment, the creosoted wood block pavement now being laid by the Board of Local Improvements is excellent. The blocks are more carefully and rigorously inspected than in most American cities. . . . The concrete foundation was good and the blocks were properly laid. . . .

I was able to inspect on the streets a few asphalt pavements in progress in Chicago, but not to analyze or test carefully the materials used. On most of the work I saw the materials appeared to be satisfactory and the work of construction well done. In one case, however, I found the work very unsatisfactory. . . . On the whole, the asphalt pavements now being laid in Chicago are not up to the high standard of excellence that they should be; although it may also be said that they appear to be as good as the average in other cities, and they are probably as good as the city can hope to secure at prevailing prices, which are below a figure that would enable the contractor to do first-class work and make a reasonable profit on it.

I was able to examine but two brick pavements in course of construction. In these the brick was of excellent quality; they were laid with care and the joints were well filled with paving pitch of proper quality.

Mr. Whinery makes a number of suggestions in this report which are of equal interest to other cities, large and small, although a number of them would not receive the approval of all paving engineers and experts. One of the most important general criticisms is that

The same paving specifications and the same requirmeents are in nearly every respect made to apply to all pavements of one kind in the city, regardless of the conditions found on the individual streets. Thus, a 6-inch concrete foundation is specified for asphalt pavements, whether the street be one of the heaviest traveled in the heart of the city or a residence or suburban street carrying very light travel. Chicago is not, however, alone in this, since the same practice prevails in nearly all American cities. . . . On some of the heaviest traveled streets the concrete foundation should be 8 inches thick, while on a large percentage of the suburban or residence streets, where only a small quantity of the lightest character of travel needs to be provided for, a pavement with 4 inches of concrete foundation, one inch of binder and 1½ inches of surface would be ample and the cost would be but about three-fourths of the cost of the heavier standard.

It is specified that the sidewalk shall consist of 9 inches of foundation, 3½ inches of concrete base and ¾ inch of surface course. The main object of the 9 inches of cinders or other porous material in the foundation is to facilitate drainage, and thus prevent the heaving action of frost. It is useful for this purpose only when the porous foundation is quite free from water. Unless drainage is provided for the trench occupied by the porous material it may be filled with water and the purpose of the foundation defeated. The specifications do not provide for such drainage. This should be done by placing drain tiles to carry the water from low points to the nearest sewer inlet or to some other outlet, so that all water reaching the foundation shall be promptly carried away. If such drainage were provided it would not be necessary to make the foundation course more than 6 inches, which is sufficient to distribute the weight over the underlying soil.

The width of berm called for (one foot) is often not sufficient where the grade of the sidewalk is considerably above the natural surface of the ground. In many existing sidewalks that may now be seen in Chicago, this berm or bank of earth has been entirely washed away, or it has at least disappeared, so that the edge of the concrete is unsupported and sometimes projects more than a foot beyond the supporting earth. I would suggest that the width of this berm, at the grade of the sidewalk, be made twice the depth of the fill at each point. Thus, where the top of the sidewalk is one foot above the natural surface of the ground the berms should be 2 feet wide at grade.

Commenting upon the fact that the department has adopted practically all of the specifications recommended by the Association for Standardizing Paving Specifications, Mr. Whinery considers this unfortunate, as he believes these to be open to severe criticism in many respects. The most serious objections which he finds to them are in connection with the specifications for asphalt to be used in asphalt pavements, the description of the wood to be used for wood blocks and the oil to be used in treating the same. These will be referred to later.

Another general criticism which he makes is in connection with the right reserved in the contract to change plans and increase the amount of work. Concerning this he says:

In justice to the contractor and as a safeguard to the city, the power to increase or decrease the quantities of work for which unit prices are provided in the contract should be limited to a definite per cent of the quantities on which the contract is based. The latitude thus given should not exceed ten per cent either way. Any greater increase or decrease should be the subject of a supplemental contract. Within the units named the contract unit prices should apply to and cover all the work done.

The term "extra work" is necessarily indefinite. It is elastic and may be made use of to cover up a great quantity of crooked or questionable transactions between the contractor and dishonest city officials. It should be carefully and strictly defined in contracts and should in every case be the subject of a supplemental contract if its value is to exceed a stated sum, say $250.00.

Supplemental contracts should be made on standard printed blank forms and should be filled in with the same care and executed with the same formality as the original contract to which they should refer. They should include a form of consent which should be executed by the bondsmen.

So much care and formality may be thought unnecessary by city officials in most cases, but should be strictly enforced. More honest misunderstandings and greater opportunity for dishonest practices occur in this matter of extra work, as ordinarily handled, than in any other element of contract work and it should be dealt with accordingly.

Commenting upon the fact that, in proportioning concrete materials the cement is measured loose, he suggests the following clause to cover this:

One barrel of Portland cement shall be held to be four cubic feet and one standard bag of cement (four bags to the barrel) as one cubic foot; and the quantity of sand and stone to be used shall be determined accordingly.

The proportions for pavement foundations and also those for sidewalk foundations he considered unnecessarily rich and recommended changing the former from a 1:3:6 mixture to a 1:3:7 and the sidewalk foundation from a 1:2½:5 to a 1:3:6. As stated above he also recommended reducing the thickness of the pavement foundation on residence streets from six to four inches; and he considered the 9 inches of sidewalk foundation as unnecessarily deep and recommended reducing this to 6 inches. He also recommended that the 7-inch concrete foundation and 2-inch surface course required at driveways across the sidewalks be reduced to 5 inches and 1½ inches respectively. These changes were recommended as reducing the cost

of the work, without, in his opinion, making it undesirably weak.

Concerning brick pavements his principal recommendations were that for 12 to 14 inches out from the curb the brick be laid parallel with the curb, whereas the present practice is to carry all courses at right angles with the street for the entire width from one curb to the other. The object of the proposed change is to reduce resistance to flow of water in gutters on flat grades. He also recommended the use of cement grout filler instead of bituminous filler; in spite of the confessed advantage of the latter that the street may be thrown open to travel as soon as the bituminous filler cools, which will be well within 24 hours; while if the grout filling be used the street must be closed from four to seven days until the cement sets hard enough to withstand the travel.

The specifications for asphalt he considered to be insufficiently exact. "Experience has shown beyond question that it is unwise for cities to admit asphalts the use of which is more or less experimental. Desirable as is free competition among contractors, it is secured at too great a cost when the result is inferior pavements. This is particularly true now when unreliability of long time guarantees of pavements by contractors is generally recognized." He recommended confining the asphalts admitted for use to three or four well-known varieties and practically preparing different specifications for each of these, recognizing their varying qualities and adapted to secure the best results. He refers to the danger that in obtaining the so-called artificial asphalts by distillation the oils may be raised to too high a temperature, resulting in "cracking," which greatly injures the asphalt for paving purposes. This matter of quality of asphalt he considers so important and so difficult to control under the ordinary contract system that he recommends "that cities shall themselves supply the contractors with the refined asphalt for asphalt pavements, in the same way that many cities and corporations supply their contractors with hydraulic cement, in order that its quality may be satisfactory and uniform. . . . . Uniform material of high quality would be insured and contractors could then have no motive for using cheap and inferior asphalt. The contracts would then be for the construction only of the pavement, and as only a few different kinds of asphalts would probably be used the city could determine the kind to be placed on any given street and prepare the specifications explicitly to fit the work."

Concerning wood paving blocks Mr. Whinery apparently believes in the use of real long leaf yellow pine and not what is commercially offered under this name; and therefore recommended that it be called for under its botanical name, *Pinus palustrus,* since a considerable amount of short leaf pine and lob-lolly pine are sold as long leaf yellow. He also stated that considerable amounts of Tupelo gum, a very inferior wood, is sold under the name of black gum. The specification that "the annual rings shall number not less than six to the inch measured radially from the center of the heart" will not, he states, exclude all wood other than long leaf yellow pine, as it is intended to do; since other species of pine often have more than six rings. But in mature true long leaf yellow pine the rings are seldom less than 12 to the inch, and he therefore recommended specifying not less than ten annual rings and the strict enforcement of this.

Concerning the oil used for treating wood blocks he severely criticized the specifications of the Association for Standardizing Paving Specifications, stating that these do not provide for a true creosote oil at all, and that "it is not claimed by its advocates that the oil called for by these specifications has this antiseptic property to any useful degree, but they do claim that its preservative property, due to the exclusion of water, is sufficient for paving blocks." We think Mr. Whinery is mistaken in this, and that the advocates of these specifications *do* claim that they provide for a considerable amount of creosote in the oil and that it does have antiseptic property. He also makes the claim, which has been frequently made by others and emphatically denied by the advocates of these specifications, that the oil called for by them is a monopoly and that free competition is thus prevented.

One practice in connection with asphalt pavement repairs which he criticises seems to us to have much to commend it. He found that the contract for resurfacing asphalt pavements was let last June to the Barber Asphalt Paving Company for 76 cts. per square yard, which he says is below actual cost if the work be properly done. This he explains by the fact that the same contractor is also to repair, ordinarily at the same time, the pavement over plumbers' ditches and other cuts, the price for which is fixed by the city and is not subject to bidding. The price for this work is $3.00 per square yard for openings less than 25 square yards and $2.00 per square yard for those over 25 square yards, with $10.00 as a minimum charge. When these are done in connection with the general resurfacing of the street there is a very large profit in them and a part of this profit is probably figured by the contractor as offsetting any loss in the general resurfacing contract. The repair of these pavement cuts is paid for by the parties for whom the cuts are made; and therefore, if his assumption is correct, the same parties pay for a portion of the resurfacing of the entire street outside of the cuts. It is this to which he seems to take exception, as not being equitable; but to us it seems a very admirable arrangement since it tends to confine the number of cuts to those actually necessary, and since the damage done to a pavement by a cut is not limited to the area of the cut itself but frequently extends to a considerable distance and where the cuts are numerous it seems quite probable that the life of the entire pavement may be reduced by them.

The city of Chicago taxes the owners of vehicles and applies the funds thus raised to keeping the pavements in repair. This principle Mr. Whinery considers a sound one and congratulates the city upon its successful introduction. He refers to some difficulties in carrying out the ordinance, among these being the inconspicuousness of the tags used and the lack of uniformity in their location on the vehicle, thus making it difficult for the police to determine whether or not a vehicle carries a license tag. There is also the complication in the detection of unlicensed vehicles offered by the fact that a considerable number are exempt from the tax and that a great many non-resident vehicles are to be found on the city streets. The matter of the plates or tags he is able to suggest solutions for; but he confesses that he has none to offer concerning the non-resident vehicles.

MADISON, WIS., WATER NOTES

IN his report for the year 1910, Mr. John F. Icke, superintendent of the municipal water works, gives the new schedule which the Water Commissioners prepared last year, based upon the order of the Railway Rate Commission. This new schedule in some cases slightly increases the cost to consumers and in others decreases it. According to this, the charge is divided into two parts, one a service charge which is independent of the amount consumed, the other an output charge, based upon the quantity consumed as measured by meters. For one consumer on a meter the service charges are: ⅝-inch meter, $1.50; ¾-inch meter, $1.75; 1-inch meter, $2; 1¼-inch meter, $2.75; 2-inch meter, $3.75; 3-inch meter, $6; 4-inch meter, $10. For each additional consumer on the same meter there is an additional charge of $1. Each dwelling, flat, suite, store, tenant, etc., is regarded as one consumer. The output charge is 6 cents per 100 cubic feet, up to and including 75,000 cubic feet, and 5 cents for quantities in excess of 75,000 cubic feet. The service charges are payable semi-annually in advance. The report states that the output charges are also payable in advance, but this must be a mistake.

In addition there is a provision for flat rates, under which residences, stores, etc., with sewer connections, are charged $3, and those without sewer connections $1.50; barns, warehouses, etc., with sewer connections, paying $3, and those without sewer connections, $1. These rates are payable semi-

annually in advance. The decision of the rate commission also included the payment by the city to the Water Department of $20,000 for fire protection and other services.

Attention is called to the considerable and serious consumption of water by a sewage lift which is operated by city water and which raises the sewage from a small low-lying section of the city. The water for operating this is taken from the city mains through three ⅝-inch taps, which are wide open all the time. Last winter Mr. Icke metered this water and the measurements obtained indicated a yearly consumption of about 5,300,000 cubic feet, which, at the lowest rate charged, would cost $2,650. At the time of reporting he was preparing plans for an electrical pumping station to take the place of the water-operated lift, since this amount was a heavy drain on the supply system.

The increasing use of water for street sprinkling also had been seriously felt but it was believed that this would be greatly reduced this year, as Common Council had provided for oiling all macadam roads during the present season.

USE OF FIRE HYDRANTS

IN the report for the year 1910 of A. J. Walden, Fire Marshal of Wichita, Kan., it is stated that "the frequent use of the hydrants by sprinkling wagons, cement workers and others have injured the stems until a great many of them cannot be used quickly in case of fire. Our plug wrenches canot be used on many of them to turn water on, and each plugman is required to have a Stillson wrench in order to get water from them. We frequently find the caps on the hydrants corroded or rusted so that they cannot be removed by ordinary methods, which is a serious handicap and a menace to efficient service."

The damage done in Wichita by improper use of fire hydrants appears to be greater than in most cities, but it is greater in degree only, and not in kind, than that which is always sure to result from permitting the use of fire hydrants by any except the fire department.

PAVEMENT CROWNS IN WASHINGTON

Method Used for Seventeen Years—Development of Formulas for Curbs at Same and at Different Elevations.

Paper by T. J. Powell before the American Society of Civil Engineers, published in the Proceedings of that society for March, 1911.

THE following method of treating crowns has been used by the Engineer Department of the District of Columbia since 1894, but has only recently been formulated.

This formula was suggested and deduced by Mr. Joseph W. Dare, assistant engineer of the District of Columbia, and takes into account the width of the roadway and the longitudinal grade of the street. It is applicable for all widths of roadway up to and including 50 feet, after which it is necessary to treat the section as a special one. The formula is:

$$C = \frac{W\,(100 - 4P)}{6300 + 50P^2}$$

In which C = the crown, in inches,
P = the longitudinal grade, expressed as a percentage,
W = the width of the roadway, in inches.

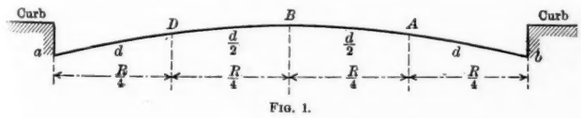


FIG. 1.

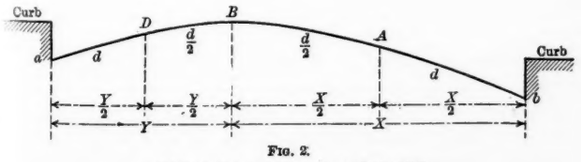


FIG. 2.
DIAGRAM OF ROADWAY CROWNS

When the curbs are level, the crown is distributed as shown by the following formula:

$$\frac{8\,C}{0.3\,R} = d$$

$$a \text{ or } b + \frac{C}{18} = \text{the elevation at } A \text{ or } D;$$

$$a \text{ or } b + \frac{C}{12} = \text{the elevation at } B;$$

d = the transverse grade, expressed as a percentage;
a or b = the elevation at the gutters, expressed in feet and hundredths.

As will be noticed in this formula, the percentages of grade from gutter to quarter and from quarter to crown in no case exceeds 4 per cent and 2 per cent, respectively, and the diagonal rate from quarter to the curb, along the hypotenuse of an isosceles triangle, the legs of which are equal to the distance from the quarter to the curb, will not materially exceed the longitudinal rate, thus keeping a team on the same rate of grade, whether they are going straight up hill or taking a diagonal course as is their desire if left to themselves.

This, as far as the writer knows, is the only formula in which this holds good.

Another point, which has been taken into consideration and is shown in the following formulas, is the location of the crown when there is a difference in the elevations of the curbs.

$$\frac{a-b}{1\frac{1}{2}\,d} + \frac{R}{2} = X$$

$$R - X = Y$$

$$b + \frac{X}{2}d = \text{the elevation at } A;$$

$$b + \frac{3X}{4}d = \text{the elevation at } B;$$

$$a + \frac{3Y}{4}d = \text{the elevation at } B;$$

$$a + \frac{Y}{2}d = \text{the elevation at } D;$$

X = the long side of the crown;
Y = the short side of the crown;
R = the width of the roadway, in feet and hundredths;
d = the transverse grade, expressed as a percentage.

This formula puts the crown and quarter points in such a position that the transverse grades from gutter to quarter and from quarter to crown will be the same as if the curbs were level, for the same longitudinal grade.

It is the practice in Washington, D. C., to put vitrified block gutters on streets on which the longitudinal grade is 1.5 per cent or less. This does not change the formula, as 0.1 feet is added to the curb side of the gutter for the rise of the same. The crown is then worked, using the distance between gutters as the width of roadway.

These formulas refer particularly to streets paved with sheet-asphalt, but for asphalt block, granite block, or other pavements having a more or less rough surface, and therefore giving a more secure foothold, it can be used equally well and give as good results by the addition of one inch to the amount of crown given by the above. This gives rates a little steeper from gutter to quarter and from quarter to crown, which is necessary, as these materials when paved on a gravel or sand base, as is usually the case, have a tendency to settle until all joints are entirely closed and water does not get between them.

These crowns give transverse grades sufficient to carry all water to the gutters as rapidly as necessary, besides reducing to a minimum the number of accidents caused by horses falling; and it produces a section which is pleasing to the eye.

CONSUMPTION OF WATER IN DRY SEASON

IN Newton, Mass., during 1910 with precipitation 25 per cent less than the average and mean temperature, one of the highest on record, the per capita consumption of water for the year increased to 62.5 gallons as compared with 59.1 during 1909.

DENVER MUNICIPAL ASPHALT PLANT

Annual Report for the Year 1910—Repair Work Done—Cement Gutters—Detail Cost of Materials and Labor—Cost of Plant

By SAMUEL R. MURRAY, Asphalt Superintendent.

THE municipal asphalt plant, of Denver, Colorado, which is in charge of the commissioner of highways, was completed July 4, 1910, but as 30 days' notice was given the contractor making the city asphalt repairs, the plant did not commence operations until August 5, 1910.

From that date until the close of the season there was turned out by the plant and laid by the department 6,058 boxes of surface mixture, 1,580 boxes of binder and 2,208 boxes of asphalt and tar macadam, a total of 9,846 boxes of mixture. The total yardage laid was 31,928.3 square yards of asphalt surface, 11,901.32 square yards of binder, 1,868 square yards of asphalt macadam and 5,447 square yards of bituminous or coal tar macadam.

In addition to the asphalt and coal tar macadam there was laid on Speer Boulevard 1,443 square yards of Amiesite, the material for which was purchased already mixed from the Amiesite Co. at a cost of $1.306 per square yard for material and labor for 2-inch wearing surface exclusive of base.

The asphalt macadam 2-inch wearing surface cost $1.10 per square yard without base, which consists of 5 inches of smelter slag rolled and coated with bituminous cement. The tar macadam 2-inch wearing surface cost $.685 per square yard, also exclusive of base, which was the same as the base for the asphalt macadam and Amiesite. All the work on Speer Boulevard was paid for by the Highway Department from its fund.

The resurfacing of Larimer street between Nineteenth and Twenty-fifth streets with 1-inch binder and 2-inch asphalt wearing surface was made necessary by the removal of the old cable slots and the laying of new steel, which changed the grade of the street; and as the original asphalt pavement had been laid 19 years it was economy to replace it entirely. Instead of the straight asphalt gutters such as had been used on the street, 5,120 lineal feet of cement gutters 2 feet wide were constructed. To the foundation was added 10,460 square yards of concrete which was laid to make up the difference in grades after new steel was in. This concrete ranged from 1 inch to 6 inches in thickness and was laid on top of the old 6-inch concrete base.

The work of laying the concrete and cement gutters on Larimer street, also the laying of the concrete around Pioneer Monument and the concrete for a great deal of the private work was performed by the Highway Department, but the entire cost was paid from the paving fund. The total cost of removing the old asphalt surface from Larimer street, constructing 5,120 lineal feet of cement gutters, bringing up 10,460 square yards of concrete to grade and laying this same yardage of 1-inch binder and 2-inch asphalt wearing surface was $15,999.64, and the cost of the binder and surface alone was $.913 per square yard.

The total amount of the money available for the paving fund by appropriation, credits, and including $2,635.02 of the highway money used by this department, was $128,655.96. Of this $51,074.34 was used for the sandstone block repairs and the contractor repairing asphalt streets before the operation of city plant, leaving a balance of $77,581.62 which was expended by this department.

The total cost of the asphalt plant, ground, building, steam roller and equipment was $30,488.11, leaving $47,093.51 which was expended on the asphalt work. Material on hand and paid for to January 1, 1911, amounted to $4,427.00, for which amount our fund should be credited.

The cost of resurfacing Larimer street, Nineteenth to Twenty-fifth streets, was $15,999.64, leaving $26,666.87 which was expended for the city's own repairing and the private work performed for plumbers, contractors and public service corporations which made cuts in the asphalt pavements.

The money received or due the city for private work done by the municipal plant (4,078 square yards), including credit for empty cement sacks returned, amounted to $10,269.10.

The cost of laying a standard asphalt pavement at Pioneer Monument (975 square yards), consisting of the excavating, laying 6 inches of concrete base, 1-inch binder and 2-inch asphalt wearing surface, and laying 200 square yards of standard pavement in Carlton Hotel alley, amounted to $1,938.75 for this 1,175 square yards. Deducting this from the total yardage of city work leaves 16,215 square yards of actual city repairs at a cost of $14,459.02 or $.891 per square yard. This includes all necessary concrete or binder where the holes had worn too deep into the pavement to be filled with surface mixture without wasting good material. All work was done on the 8-hour basis, as was other city work, and the very best of material and workmanship was used throughout.

As limestone filler was impossible to secure, Portland cement was used instead. We are now installing a mill for grinding our own limestone dust, which will lessen the cost of filler about 4 cents per square yard, so that the dust mill will pay for its installation in one season.

The greater part of the city's repairs and the repairs on the thinner pavements such as Colfax avenue and on Fifteenth street was done while the contractor was furnishing the material. This work will be done by the city plant this season, which should also decrease the cost per square yard.

RECAPITULATION

Money used from Highway Department fund.....	2,635.02

EXPENDITURES

Appropriation and credits.....		$126,020.94
Sandstone repairs and asphalt repairs to time of starting city plant.....	$51,074.34	
Cost of plant and equipment.....	30,488.11	
Material now on hand.....	4,427.00	
Cost of Larimer St.....	15,999.64	
Pioneer Monument, etc.....	1,938.75	
Private work and credits.....	10,269.10	
Cost of city's own repairs.....	14,459.02	
	$128,655.96	$128,655.96

HOUSE NUMBERING BY LATITUDE AND LONGITUDE

A CORRESPONDENT from Paris, France, to a Chicago daily paper states that a system of house numbering has been recommended for that and other European cities, by which the entire city would be divided into small squares ten meters on a side, and the location of all buildings in the city be designated by the square it occupies, in addition to the street numbers. This amounts to practically a system of co-ordinates, each square being designated by a certain number of units of distance north or south and east or west of co-ordinate axes. The advantage claimed by the advocate of this is that the position of any building sought relative to any other locality could easily be recognized and the building found, since every lamp post or street corner would carry the co-ordinate numbers of its particular locality, north and south ordinates being in red and east and west in blue. In addition, there would be an arrow pointing approximately north.

It seems to us that this system, while it has some advantages, is more cumbersome and in general less desirable than the method adopted by some cities in this country of numbering the houses according to a co-ordinate system, the chief advantage of the proposed system being that it is unnecessary to know the location of the street on which the desired building is located, as in the system of co-ordinate numbering. On the other hand, the proposed system requires a double address, one giving the co-ordinates and the other the street and house number. The location of streets is a simple matter where all are given numbers, and those in one direction called avenues, as in New York; but this system can be adopted completely only where the street system is almost wholly on the rectangular or grid-iron plan. Where this is not the case the arrow to designate north would doubtless be of assistance, to be placed on each corner street sign on streets running approximately north and south.

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CHANGE OF ADDRESS
Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

MAY 10, 1911.

CONTENTS

Pollution Through Water Mains

SOME time ago there appeared in one of the New York daily papers a letter from an interested citizen which undoubtedly must have amused most engineers who read it. This called attention to the great danger of polluting the city's water supply which was occasioned by permitting dirty street water to enter the valve boxes; the writer's supposition, of course, being that these valve boxes led into the mains, and that the street water flowed into the mains through them. It seemed difficult to understand how any one with the most elementary knowledge of technical matters could imagine such a thing.

However, a recent report of the Virginia State Board of Health contains a report by a civil engineer and a physician that just this thing had occurred in Lexington, in that State, and when the circumstances are set forth it does not seem so impossible. It seems that, owing to the drought last fall, an effort was made to retain water in the reservoir for fire protection by closing certain valves on the main distributing pipes every evening and opening them in the morning. The continued use of water from the mains while the valves at their upper ends were closed tended to produce a vacuum in this above the points of greatest consumption, and the hypothesis is advanced that this vacuum caused the entrance of ground water into the mains through leaky joints, which ground water was presumably polluted with sewage from sewers in the vicinity which were known to have been leaking. The circumstances were such that the only other plausible reason which suggested itself for the epidemic which occurred in November was that some of this same sewage from the leaky sewer had entered the main during the making of a house connection. One argument in favor of the former supposition is that the indrawing of the ground water by the vacuum would probably have taken place daily, whereas the entrance through the tap for the house connection could have occurred but once and all the water containing it would, under the circumstances, probably have been drawn off within a day or two.

The danger of drawing in polluted water through leaks in water-works intakes, where these pass through bodies of impure water, is thoroughly appreciated; but a new danger is suggested by this report from Lexington, and it does not necessarily require the existence of a leaking sewer, since the ground under most cities and the water in it are more or less grossly polluted. The danger of such a happening should, therefore, be borne in mind whenever any manipulation of water mains is contemplated which might result in a negative pressure. Theoretically, of course, the joints should be so tight that the indrawing of water in such a way would be impossible, but this cannot be certified to in many cities. The simplest preventive would be to leave a few fire hydrants open as long as the hydraulic gradient is below their nozzles.

Prepare Now for Water Shortage

THE Water Commissioner of New York City within the past week, through the several daily papers, requested that the consumers be as careful as possible not to waste water, as the amount of water at present in the reservoirs was the lowest in several years. "The department is doing everything it can," the commissioner is reported as saying, "to avert the famine, and we have already stopped the use of hose in the city. The per-capita daily consumption of water in the city is 111 gallons. This is altogether too large, and means that a great deal of water is being wasted."

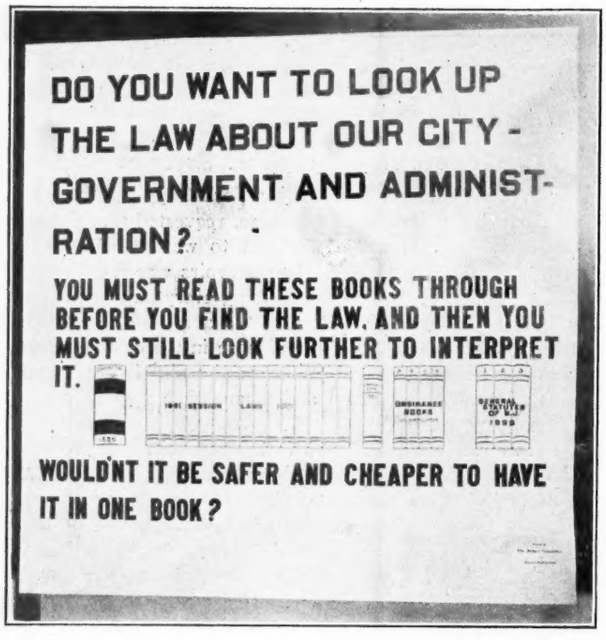
The same commissioner last October removed a deputy commissioner of water supply who, it was generally understood, had been appointed at the request of citizen organizations expressly to discover and stop the leakage, waste and illegal use of water in New York and who, in about six months, by inspection, the use of pitometers and the testing of meters in the boroughs of Brooklyn and Richmond had increased the meter registration about 300,000,000 gallons a year and had discovered and stopped leaks which had been flowing at the rate of about 1,350,000,000 gallons a year. This work was abruptly terminated with the dismissal of the deputy commissioner. It is interesting to recall these facts while reading the commissioner's plea.

The last year or two has seen cities, both large and small, in all sections of the country from Maine to Texas, confronted by a shortage of water supply. In many of these cases it is not even a question of spending the necessary funds—an increased supply seems to be actually unobtainable. In view of this it seems necessary that thorough, intelligent and honest effort be made to adopt some method or methods which shall restrict the use of water to that which is necessary, and discover and remedy most of the loss through leaky mains. What methods should be adopted we do not pretend to say, and they would possibly differ in different cities, but several such are available and it would seem to be the part of wisdom and true economy for a great many of our cities to initiate or increase the use of them.

BUDGET EXHIBIT IN HOBOKEN

A MUNICIPAL budget exhibit, gotten up by the Board of Trade, assisted by the Robert L. Stevens Fund for Municipal Research and the Board of Education, is being held in Hoboken, N. J. The exhibition occupies two large rooms, one containing the Board of Education exhibit, consisting for the most part of samples of work done in the schools, and the other containing the exhibits prepared mostly by the office force of the Stevens fund. This includes the same classes of articles shown in the exhibit of the city of New York, held last winter, namely, placards containing data or calling attention to interesting facts, graphic illustrations, photographs, plans, models and physical objects. On the whole, the exhibit is a very commendable one, and has attracted crowds of visitors. A series of talks on topics of municipal interest is also a drawing feature of the show.

The data supplied by the financial department is, of course, the most comprehensive. This tells the same story as similar statements of almost any other city, namely, constantly increasing taxation. Other parts of the exhibit indicate that the benefits also have been constantly increasing. In Hoboken's case however, it seems that State and county taxes have increased even faster than city taxes. Other tabular statements give the mileage of pavements and sewers, and figures about the cost and strength of the fire, police and other departments. The accompanying illustration is a reproduction of one of the most interesting placards. The proposition presented is purely a local one, but the condition prevails in many other cities. The laws regarding city government and administration are recorded in so many different books that only experts can find them, and perhaps not even they with certainty.



ONE PLACARD IN THE EXHIBIT

Among the models are three which convey information of considerable practical value at a glance. One shows the strength of the fire department. On a map of the city are miniature houses, properly placed, and small models of firemen. The observer who looks closer will see written on the map on each side of the house a statement of just what apparatus it contains. A similar map gives the distribution and housing of the police force throughout the city. Still another gives the distribution of the street cleaning force, and shows plainly how much more it costs to clean a business than a suburban street.

Photographs show nearly every branch of municipal activity. Those showing park scenes are perhaps the most attractive to the general public.

Among the physical objects shown are devices actually used by the various city departments, such as the rattan broom of a street sweeping machine, an iron rubbish can and a set of tools used by the street cleaning patrol man. A water main tapping machine attracts considerable attention. Along with this are samples of iron cut from water mains forty years old, showing the metal seemingly in as good condition as when new, and free from tuberculation. This exhibit has a cheering effect, showing citizens that some things have been done fairly well, if only by a private water company. The fire department shows a pretty complete set of small tools, such as axes, door openers, hose nozzles, rubber hose and the like. The Playground Commission has one of the most complete exhibits in the whole collection. It includes photographs of grounds and the physical objects used, as well as models. The prominence of the playground feature may be an inheritance, for Hoboken citizens are largely of German descent, and Germany leads the world in its interest in children and the invention of toys and apparatus for their amusement and development. Judging from the exhibit, Hoboken must be far ahead of most cities in the equipment of its playgrounds.

Bureaus for municipal research are naturally critical, and a show gotten up under such auspices would not be complete without a "table of lemons." This, with an appropriate placard portraying the citrous fruit, contains a series of small articles purchased by contract or otherwise by various city departments at prices considerably above those ordinarily charged at retail. These are mostly stationery articles, such as erasers, etc.

The exhibit, of course, has an object. The 1911 budget is to be voted on June 11. The sum of $675,000 has been asked. The Board of Trade, which is responsible for the exhibit, does not assume to say whether the sum is too much or too little; but a circular which it distributes states that it should be large enough to meet all obvious needs. Whether it should be greater than last year depends upon whether it guarantees greater benefits to the community, for an increased budget should mean increased returns. What the Board of Trade has done is to collect such information as it could in regard to city affairs and present it in a popular way, all for the purpose of making the people think.

GREENWOOD WATER AND LIGHT PLANT

IN the report for 1910 of the municipal water and electric light plant of Greenwood, S. C., Superintendent A. J. Sproles shows the condition of the plant to be apparently quite prosperous. Water is obtained from wells and pumped into a reservoir and a standpipe, steam power being used. Current for the lighting plant is purchased from the Savannah River Power Company. The department furnishes to the city without charge 18 incandescent lamps, 87 6.6 ampere arc lamps, 61 fire hydrants and water for flushing sewers, sprinkling streets, for public fountains and watering places. The water rates are 20 cents per 1,000 gallons up to 10,000 per month and 15 cents for all over this, while the charge for electric current is 10 cents per kilowatt up to 100 per month and 8 cents for all over that. The accounts of the water and light plants are not kept separately. The total receipts during the year were $28,612, of which $6,539 was spent in extensions, $1,118 remained as a balance and $3,500 was used for redeeming bonds.

Although the city is not regularly charged with the services rendered, a book account has been kept in which the fire hydrants are charged at $25 each, the arc lights at $60 each and incandescent lamps at $25 each. Water for flushing sewers and streets, for faucets and fountains and for street paving construction is charged at $900 for the year 1910. Figuring in this way and deducting the interest on the bonds, which is paid by the city, shows a balance to the credit of the department of $47,436. The original bond issue was $40,000 and later bond issues have brought the total up to $57,358. Since 1900 the department has made extensions from its earnings costing from $1,500 to $6,538 each year. These extensions from earnings would have sufficed to pay each year into a depreciation account nearly 7 per cent on the first cost, or about 6 per cent on the first cost plus extensions.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

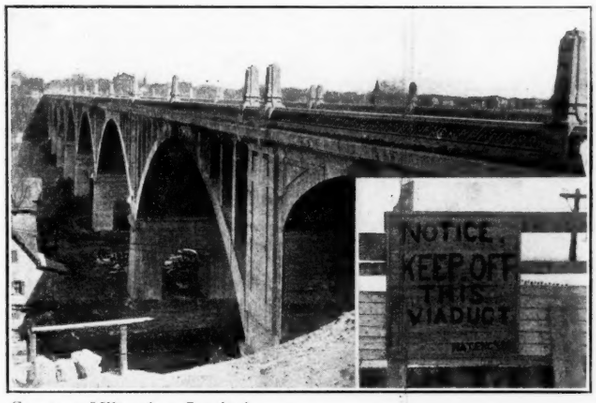
ROADS AND PAVEMENTS

Merchants Improve Streets

Hastings, Pa.—At a recent meeting Council accepted the proposition of the business men to improve the thoroughfares of the borough. A King road drag was used most effectively on the streets, and after a few holes and ruts are filled the thoroughfares will be in good condition again. No permanent improvements are contemplated, as the question of a sewer system is still before the citizens.

Viaduct Finished but Unused

Milwaukee, Wis.—The Grand avenue viaduct which was practically completed last October at a cost of $500,000 is barricaded by the contractor, the National Engineering Company and is unused. The builders claim that the work has been finished and accepted by the authorized officials. The county board of highways and bridges say that it is not



Courtesy Milwaukee Sentinel.

VIADUCT UNUSED ON ACCOUNT OF LITIGATION

completed according to contract and have advised the contractor not to permit its use. The condition of things shown in the illustration is the result. The trouble arose from a change in the specifications from the sectional to the monolithic form of construction. Litigation and dissensions have been almost constant since the starting of the viaduct by the Newton Engineering Company in 1907, when $30,000 worth of work was done, declared defective and the contract reawarded to the National Engineering Company.

Oppose Street Improvements

Cincinnati, O.—Protests against the proposed improvement of Richmond street, from Freeman to McLean avenues, have been made to the Council Committee on Streets and Parks by manufacturers whose plants are located along the street. They claimed that the improvement was not necessary and that the asphalt street would not be as good a street for the heavy traffic as the present boulder street. John Gigos, School Board member, spoke for asphalt. The committee took the protest under advisement and will inspect the street.

Boulevard Plans Are Now in Shape

Salt Lake, Utah.—Revival of the Saltair boulevard project, on a scale and with a backing that practically assures the early culmination of this long-talked-of enterprise, was brought about at a recent meeting of local autoists. Joseph Nelson, president of the Saltair Railroad, appeared before the meeting and pledged the necessary money required for the building of the road, above $25,000, which the autoists themselves must raise. The proposed route is directly west to Saltair, on to Garfield and returning to the city through the southern end of the valley. It is intended to complete the road within six weeks, in time for the coming season at the lake.

SEWERAGE AND SANITATION

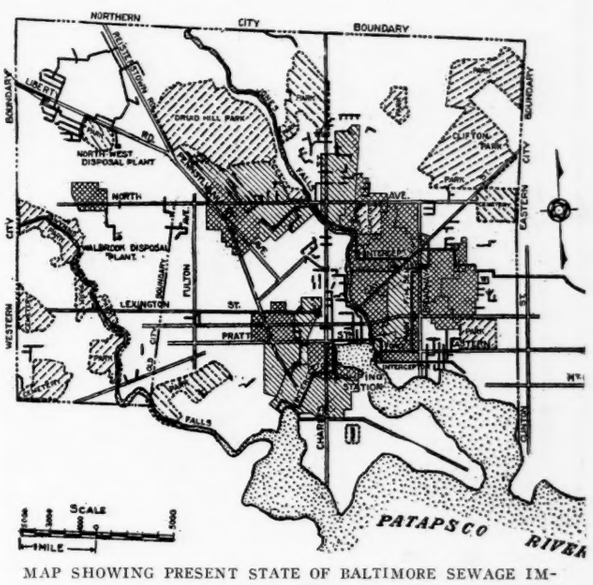
Starts Anti-Fly Crusade

Portland, Ore.—Health officers are going to make Portland a flyless town this summer. They promise these disease breeders will be rare and that the fly pest of former summers will be almost wholly abated. The system of flushing the downtown pavements every night, instead of sweeping them as formerly, washes the larva of the flies into the sewers, thus doing away with one of the most favorable breeding places. Every road leading into Portland will be oiled this summer to lay the dust and this treatment completely kills flies and renders their eggs harmless. The oil applied is crude petroleum which contains a small quantity of carbolic acid and is sure death to flies and mosquitoes.

Present Condition of Baltimore Sewerage Construction

Baltimore, Md.—The accompanying map shows the area in which lateral sewers will be built from the proceeds of the first sewer loan. The heavily shaded sections are those in which the laterals have already been laid or contracted for. The lightly shaded sections are those for which no contracts have been made, but to cover which there are still sufficient funds on hand from the last loan.

In addition to this work, principal parts of the system have been built, at a cost of $3,700,000, which are designed for a population of 1,000,000. These are:



MAP SHOWING PRESENT STATE OF BALTIMORE SEWAGE IMPROVEMENT

Outfall sewer, from Chase and Durham streets to disposal plant, 5¾ miles in length.

High-level interceptor, from Chase and Durham streets, to Jones' Falls.

Low-level interceptors, from Warner and Alluvion streets to Boston and Hudson streets.

Force main and force main sewer, from pumping station to Chase and Durham streets.

At the disposal plant a sufficient numbere of units to pump the sewage of a population of 275,000, comprising hydrolithic and sludge digesting tanks, sprinkling filters, settling basins, hydro-electric plant and discharge conduits.

Sewage pumping station building, at Eastern and East Falls avenues, of sufficient size to contain pumps to pump sewage from the lower lying sections, which comprise one-third of the city.

Three sewage pumps of 27,500,000 gallons daily capacity, with the necessary boilers and other equipment.

These expensive items having already been taken care of, a much larger proportion of the next loan can be devoted to laterals. While less than half the city has as yet been laid with them, therefore all the remainder can be provided for from this loan.

Ohio Village Has Modern Disposal Plant

Marble Cliff, Ohio.—Marble Cliff, a village of 300 inhabitants, now has a complete modern sewage disposal plant besides a system of sewers 12,000 feet in length. The disposal plant, shown in the illustration, comprises a contact filter system with sedimentation tanks and secondary fine cinder filters. The sedimentation tanks are roughly 20 feet square and 6½ deep. They are divided into three chambers of equal size and so arranged as to allow the sewage to flow through all tanks in series or parallel, to allow the cutting

Photo. by C. L. Dowerman, Staff Photographer Columbus Dispatch.

A VILLAGE SEWAGE DISPOSAL PLANT

out of any of the chambers for cleaning. The contact filters are 87 x 29½ feet in area and 5 feet deep. They are divided into three filter areas, and are provided with airlock apparatus which automatically directs the flow of sewage onto each of the three beds in rotation, allowing each bed to fill to the depth of 3 feet and then directing the flow into the next filter, while at the same time starting a timing device which automatically controls the outlet. The timing device is so arranged that the sewage can be held for from fifteen minutes to four hours on the filter, and then thrown onto the secondary filters. The secondary filters are of the same dimensions as the contact filters, but are only 3 feet instead of 5 feet deep. They also are divided into three beds and equipped with a system of gates to direct the flow into any of the beds.

Sanitation Ordinance Is Passed by Board

Dallas, Tex.—An ordinance has been passed by the Board of Municipal Commissioners providing for the sanitary condition of bakeries, canneries and other places where foods are prepared or offered for sale. The ordinance will become effective in thirty days. The act requires that such places shall be "properly lighted, drained, plumbed and ventilated and conducted with strict regard to the influence of such condition upon the health of the operatives, employees, clerks or other persons therein employed, and the purity and wholesomeness of the goods therein produced." Cleanliness as to all walls, ceilings and floors, paint for all exposed surfaces, care for the cleanness of the implements, machinery, utensils and boxes and for all paper used, care for the cleanness and health of persons employed are required. Screening is obligatory with self-closing screens. Sleeping will not be permitted in any workroom nor will any person with a contagious or infectious disease be employed. Members of the Board of Health or their agents will be permitted at any and all times to make inspection of all such premises. Sweeping the floors of restaurants while a patron is present is forbidden. No garbage is to be brought through the serving room or any eating place while any patron is present. Fruits, vegetables or other foods are not to be exposed on the sidewalks or outside of any screened place. All such fruits are to be shown in cases that are to be at least two feet above the sidewalks. All must be protected from "flies, dust, dirt and all other foreign or injurious contamination by suitable coverings of glass, wood or metal."

WATER SUPPLY

Will Cut Water Rates

Spokane, Wash.—Spokane's Water Department shows an actual 100 per cent profit on maintenance and operation, and it is planned by the new administration to cut the rates if the debts, now eating up half the gross receipts, can be cared for.

City and County Drive a Bargain

Tacoma, Wash.—An agreement has been reached between Mayor W. W. Seymour and the municipal commissioners and the board of county commissioners whereby in exchange for a pipe line franchise to the Green River water plant the city will give the county water for its institutions in Tacoma at half the price paid by private individuals.

May Go to Ozarks for Water

Oklahoma City, Okla.—It begins to look as though Oklahoma City would have to go to the Ozark Mountains of Missouri for its water supply within a few years. At any rate, some of the most accomplished engineers who have studied the question recently are convinced that such a course is the only possible solution to the matter of supply, coupled with the purity of the water. There is now being tentatively considered a proposition to vote a $5,000,000 bond issue for the purpose of extending the water system so as to get water by a gravity flow from some point in the Ozarks.

Commissioners Inspect Pipe Line Extension

East Hartford, Conn.—The Commissioners of the East Hartford fire district, Engineer C. Henry Olmsted and Superintendent of Water Works John H. Walsh recently inspected the new pipe line extension. The party took a trolley as far as Brewer street and then took carriages to Hillstown. The pipe line is nearing completion, and it was said that a connection will be made inside of a week. The contractors have worked on the line during the winter when the weather would permit. The cost is about $60,000.

Councilmen Go Over Aqueduct

Los Angeles, Cal.—The members of the City Council are making a tour of inspection of the Owens River aqueduct system. The trip is made in a Pullman car and automobiles. At night the Pullman is used for sleeping purposes and by day the automobiles are utilized for sightseeing. General Adna R. Chaffe, the head of the Aqueduct Commission, is in charge of the party. William Mulholland and J. B. Lippencott, the chief engineer and assistant chief engineer, respectively, will explain the work to the Councilmen and will tell them of the advantages to be gained by starting the work of providing a lighting and power system at once.

City Will Have Fifteen Wells Connected Soon

Lansing, Mich.—Frank J. Nichols, who has charge of the construction work for the Water and Electric Light Board, states that next week he will have another well of water added to the nine at the Pennsylvania avenue subpumping station. Then there will be five more to be connected, which will make the total 15. At present the wells in use are furnishing little more than that demanded by the city users. When the weather has really settled, and the thermometer begins to climb, there will be an increased demand for water, and this can be met by the addition of these unconnected wells.

Water Company Told Its Franchise Ends

Des Moines, Ia.—Municipal ownership of the Des Moines Water Company by condemnation proceedings may be resorted to if voters express a desire to hold a special election to determine the question. Mayor Hanna, on a resolution passed by the Commissioners, notified the company that the franchise under which it operates expired on May 1st. The grant was given the company by the city in 1871. "We are not opposed to municipal ownership of the water company," said Manager Charles Denman, of the Water Company. "If the city and company can agree on a price, the city may make over the works. Under the laws governing municipal ownership the city is given the power to own and operate water plants."

STREET LIGHTING AND POWER

Preparing for Valuation of Rail-Light Physical Property

Toledo, O.—According to plans outlined by Mayor Whitlock and City Engineer Tonson, the latter will confer next week with Rail-Light representatives to agree upon the lines they will follow in making the valuation of the Rail-Light physical property. It is expected that Tonson will work as far as possible jointly with the company's engineer. Points upon which they do not agree will be referred to Mayor Whitlock and President Lang as negotiators.

Ornamental Light System Will Be Installed

Hastings, Neb.—The first step for an ornamental lighting system for the business section of the city has been taken by the Council in the granting of a petition for ornamental lights in Lincoln avenue, between First and Fourth streets. The property owners in this section have agreed to purchase iron posts for the lights and the city will supply the current and maintain the lamps. A design for an ornamental standard will be accepted by the Council to be followed in this district and others that may wish to adopt the system on the same basis. Each post will support either three or four Tungsten lamps. They will be placed at each corner on intersections and on both sides of the street at the middle of each block.

New Boulevard Lights Put in Service

Altoona, Pa.—With at least 25,000 lined up on the sidewalks, the tread of marchers, the waving of banners and the sound of martial music, the new boulevard lighting system on Eighth avenue between Eighth and Thirteenth streets was formally placed in service last week. It was a grand holiday and the interest and enthusiasm manifested in the triumph scored by the Second Ward Civic Association were unbounded. The new boulevard lights are distinctly different from those on the West Side. There are three lamps instead of five, and the poles are enameled iron instead of brass. The poles are considerably higher and the arm is wider. They are covered with a profusion of fancy iron work and present an attractive appearance.

Light and Water Report for Year

Tacoma, Wash.—The annual report of the Light and Water Departments of the city for 1910 has been filed with the Municipal Commission by Nicholas Lawson, Commissioner of Light and Water. The report shows that during the year ending December 31 the Light Department netted the city $72,678.11 above expenditures, while the net profits of the Water Department were $28,927.81. The operating revenues of the Light Department for the year were $499,010.07, while the disbursements aggregated $303,493.41. The difference under normal conditions might be termed surplus earnings from operation, according to the report. On new work the department expended, however, $122,838.55, which, added to maintenance and operation cost, brings the total expenditures up to $426,331.96. The surplus is thus $72,678.11. The operating revenue of the Water Department amounted to $381,009.40, while the disbursements were $263,993.05. The $117,016.35 difference represents the surplus earnings from operations. On new work there was expended $88,088.54, which makes the total expenditures $353,081.59. The net surplus is $28,927.81. During the year the city pumped 3,609,850,000 gallons of water. In addition there were 2,128,680,000 gallons repumped, the total pumpage being 5,738,530,000 gallons. The total cost per 1,000,000 gallons, figured on total maintenance plus interest on bonds, was $46.03. The city at the end of the year had 220.8 miles of water mains in use, the size ranging from 2 inches to 24 inches. Twenty-nine miles of mains were laid during 1910. The total number of services at the end of the year was 16,146. Of this number 1,810 were on vacant property, where they were placed when streets were paved. New services installed totaled 1,017. Water meters in use at the end of the year were 1,254, 151 new ones being installed in 1910. Water is furnished to 1,045 hydrants, six drinking fountains and 24 watering troughs. During the year 1,045 new hydrants were installed in various parts of the city.

FIRE AND POLICE

Ordinance Provides for Police Matron

Hutchinson, Kan.—An ordinance has been passed by the Board of Commissioners creating the office of Police Matron.

Auto Chemical Gives Satisfaction

Stratford, Conn.—A new auto chemical has been received, accepted and placed in commission. Stratford is fortunate in having the kind of a chemical that this new machine is, for not only has it two chemical tanks but it carries ladders and 1,000 feet of hose so that when the auto gets to the fire everything that is needed in the majority of those fires that occur in town is right there.

Drill Tower for Fire Department Is Completed

Rochester, N. Y.—Announcement has been made by Commissioner of Public Safety C. S. Owen that the drill tower in the rear of the house occupied by Truck 5 and Engine 13, on Genesee street, has been completed and that the instruction of the members of the Fire Department in pompiere ladder work, raising of ladders, life net work and wall scaling will be commenced next week. Captain Titus Waterhouse, of Truck 5, will be the instructor.

Police Patrol Auto Here

Poughkeepsie, N. Y.—The much looked for and talked about police automobile has at last arrived and has been placed in commission. The interior may be used as a patrol auto or it can be changed into an ambulance by the dropping of the seats and the use of a stretcher, which is always ready. Besides the auto horn, a large gong is attached to the machine.

Will Study Fire Engines

Duluth, Minn.—The Board of Fire Commissioners at a recent meeting decided to recommend to the City Council that T. E. Phillips, Superintendent of Machinery of the Fire Department, be sent to Elmira, N. Y., to visit the plant of the American-La France Engine Company. In this manner he would thoroughly post himself upon the most modern fire department machinery and greatly improve his knowledge of the apparatus which is in use here. The matter will be left to the Council, with the understanding that the Board of Fire Underwriters is willing to pay half the expense of the trip, which, it is estimated, would cost $100.

Automatic Hose Wagons Arrive

Portland, Ore.—The two automobile chemical and hose wagons ordered by the City Executive Board from A. G. Long for the Fire Department have arrived in this city and are on exhibition at the store at Sixteenth and Marshall streets. An instructing engineer from the factory in Ohio, where the vehicles were built, is on his way to Portland, and when he arrives the two pieces of apparatus will be thoroughly tested. This engineer will teach the men assigned to drive the machines how to handle them before he leaves the city. This is the first automobile fire apparatus purchased in this city and is attracting much attention.

Will Change Law to Provide for Policewomen

Spokane, Wash.—A new obstacle has arisen in the park board's program for placing policewomen in parks of the city. The recent civil service requirements promulgated by the city commissioner are so stringent as to physical requirements that it is believed few women would be able to pass the examinations. "It undoubtedly will be necessary to draw up an entirely new ordinance in this connection," said Attorney W. J. C. Wakefield, chairman of the board committee having the matter in charge. "I have not gone into the matter thoroughly, but that is my belief, off-hand." So far as their sex is concerned, the lawyer says, there need be no legislation. As yet, however, there is no provision for policing the parks and it is likely the same ordinance authorizing the patrolling of city parks will stipulate different physical requirements from those expected to patrol downtown streets.

Fire Department Gets Apparatus

Manchester, N. H.—Orders for a two-horse truck for engine 7 of Somerville street, and for an automatic hoist for Aerial Truck 1 of the Central Fire Station, were passed at a recent meeting of the Aldermen.

Tests Deluge Set and Purchases It

Albany, N. Y.—A test of a four-way Eastman deluge set was recently made in Market Square in the presence of Commissioner of Public Safety Contine and Fire Chief Bridgeford. Four lines were run from three steamers to the deluge set. A 2-inch stream was thrown to a height

Courtesy Knickerbocker Press.

TESTING EASTMAN DELUGE SET, ALBANY, N. Y.

of 250 feet. With a 1½-inch nozzle the stream went still higher, but did not impress Chief Bridgeford as favorably as the larger stream. It is believed that if the department had had this set at the time of the capitol fire the results might have been different.

Police Receive Correspondence Course of Instruction

Louisville, Ky.—Through articles published in the Police Bulletin, the official organ of the Louisville Police Department, the members of the force are receiving a "correspondence course" in policing. Col. H. Watson Lindsey is the instructor and schoolmaster. Chief Lindsey recently adopted this plan of giving the officers a daily lesson in the duties of a policeman. Not only are the members given instruction on many important subjects in connection with the work, but they are given rules and regulations concerning their personal conduct.

Tapper System Being Installed

Portsmouth, Va.—The tapper auxiliary system for the fire alarm has been received here and installed by Superintendent Smith, of the fire alarm system. The auxiliary system will enable the firemen, by its operation, to instantaneously inform all of the other engine companies of their departure from headquarters on "still alarms," a tapper system of indication sounding in all of the houses when the firemen are called out on other than alarms over the fire telegraph system. When the apparatus returns to any one of the houses from the "silent" calls, it will be possible to immediately inform the other companies that the apparatus is back and ready again to cover its territory. Hitherto it has been necessary for the firemen to inform those in other stations of their activity on "still" alarms by use of the telephone.

Citizens Work for New Charter

Lockport, N. Y.—In support of the new charter for Lockport a big delegation went to Albany to be present at the hearing before the Cities Committee of the Legislature on the progressive charter bill. The supporters of the charter will be backed by petitions with over 2,500 signatures of electors of the city.

Bonding System May Be Changed

Youngstown, O.—Guarantee bonds were discussed at length by council at a recent meeting, and suggestions for the establishment of a new system were brought out. A number of contractors have complained that they are unable to get bonds from some of the bonding companies. This was brought up by Councilman Jerry Sullivan several weeks ago. There has never been a case in the city where a bonding company had to make good on any job they went surety for. Last year $10,000 was paid out by local contractors to these companies, and an effort will be made to retain this money in the city. Councilman William Sampson suggested that one-half of 1 per cent., the amount contractors pay for their bonds, be retained by the city when a contract is let; that this sum be put in a bank and in case the street needs repairing it be paid out of this fund. The money is thereby kept in the city instead of being paid out to foreign companies. A plan similar to this is in force in Cleveland. City Solicitor David Jenkins has a plan whereby 3 per cent. of the amount of the contract be retained by the city. The amount of the guarantee is increased and the city will have a large fund to call upon. The money will draw interest and at the expiration of the guarantee the money is refunded to the contractor with or without interest, as is decided upon. Another feature in connection with this, as advanced by Mr. Jenkins, is to have all repairing on a street made under the supervision of the contractor who originally did the work.

STREET CLEANING AND REFUSE DISPOSAL

Test New Method of Laying Dust

Newburgh, N. Y.—Grand street between Broadway and Ann street looked like a winter's day recently, notwithstanding the fact that the thermometer was performing unheard-of stunts and the heat was broiling. The reason for the appearance of this particular portion of the street lies in the fact that Waldo E. Austin and the representative of the Solvay Process Company of Syracuse have been demonstrating the merits of the dust preventer manufactured, or sold, by the Solvay Company. The material used is granulated calcium chloride, and it is practically a new factor in dust laying.

Street Washer Is Tested Here

Trenton, N. J.—The Charles Hvass street washer was tried by the city last week and proved all that was claimed for it. When the washer has passed over a pavement one can scarcely scrape up a speck of foreign substance. The trials were on South Stockton street, Front street, Broad and West State streets, and everywhere the experiment delighted the many members of the Chamber of Commerce who were invited by Chairman Charles H. Reichert and Louis P. Nitz of the councilmanic street committee to witness the performance. All the committeemen and Street Commissioner Burk were likewise well pleased.

Board of Health Urges Installing Garbage Crematory

Atlanta, Ga.—In the hope of getting something done toward the city's long delayed crematory, the Board of Health at a recent meeting named a special committee of three to confer with the Bond Commission with reference to a site and to otherwise push the matter. The crematory is one of the most important things the present administration has to deal with, and yet it has been delayed more than most anything else connected with the city government. Not only has nothing been done this year, but no progress was made in the closing months of last year. The bond issue provides $50,000 for the crematory. But this sum is not a third the amount needed. The first thing is to find a site. Two have already been selected, in a tentative way, but abandoned because of the howls of protest that arose when their selection was made public.

RAPID TRANSIT

Would Stop Custom of Blocking Car Doorways

Indianapolis, Ind.—An ordinance forbidding persons to stand in the doorways of street cars is being prepared by Councilman Charles B. Stilz, who believes the practice of crowding street car doorways is an inconvenience to other passengers.

Trolley Company Gets Franchise

Carlisle, Pa.—The local trolley company at a special session of Council got the much-desired franchise for a line under the Orange street subway, but it is limited to 10 years, and the only reason other restrictions were not put into it is that it is believed the borough authorities do not possess the power.

Anticipate Much Benefit from Electric Road

Caldwell, Ida.—W. E. Pierce, president of the Boise Interurban, held a conference with members of the Caldwell Commercial Club relative to the proposed extension of the company's line from this city through the Deer Flat country and ending with a terminal at Roswell. The matter of extending the company's line has been hanging fire for the past two months, but the conference was fraught with indications that work would be commenced shortly and that the rich territory through which the project is planned to run would soon be placed in closer relations with Caldwell.

New Traffic Regulations

Elizabeth, N. J.—Elizabeth is to have drafted an ordinance regulating street traffic, and if the ideas of Mayor Stein and City Attorney Connolly are inserted in the ordinance the regulations will be such that the lives of pedestrians on Broad street at the East Grand and West Grand street crossings and in the vicinity of the arch will be safe. An ordinance has been adopted by City Council instructing the City Attorney to draft such an ordinance. The ordinance gave the whole jurisdiction in the matter to the City Attorney, who states that he will begin work on the ordinance immediately and confer with various city officials regarding the subject.

MISCELLANEOUS

Brockton Gets a Picture

Brockton, Mass.—The Brockton Woman's Club formally presented to the city an oil painting, "The Brook," by John J. Enneking. The presentation was in the office of Mayor Harry C. Howard at the City Hall. The picture will be placed in the municipal art gallery at the public library.

Planning a New Bangor

Bangor, Maine.—Following the disastrous fire of May 1 plans are being made for rebuilding the burned district with a new arrangement of streets. There is a movement to create a large park along Kenduskeag stream, which shall be faced by public buildings. Plans for scores of new business blocks and residences are being made. Wooden structures will be prohibited in the business section.

Plan Bonus System for Park Employees

Los Angeles, Cal.—Arrangements will be made by the Park Commission, if possible, to institute a bonus system for the employees of the department, somewhat similar to the one in use on the aqueduct and which has made it possible to break world records in hastening that project. The plan of the Commissioners, which is somewhat in embryo at present, is to offer a certain amount—$5 has been suggested—to each workman in that park which wins the quarterly prize for merit and efficiency. Under the merit system the present Park Board has succeeded in greatly increasing the efficiency of the park workmen, in addition to effecting a considerable saving in cost of upkeep. Figures showing the averages for economy and efficiency in all the parks except Central, Griffith and Exposition, for the quarter ended March 31 have been approved by the Board, and for the second time the prize has gone to M. F. Duncan, foreman of Sunset Park. Considerable rivalry already is shown among the different park foremen to increase their average and it is believed the spirit could be still further augmented, especially among the laborers, if the bonus system was put into effect. The members of the Commission are in doubt as to exactly what procedure should be taken, and the Council will be asked to provide a way—probably by ordinance.

Municipal Spelling Book

Milwaukee, Wis.—Milwaukee is to have a municipal spelling book after the teachers in all grades make reports next January of the words most frequently misspelled in their classes. The School Board has so ordered.

Gives 5,000 Trees to School Children

Gloucester, Mass.—Through the generosity of William G. Brown, of the Boston Store, 5,000 trees were distributed among the school children to be planted on Arbor Day. The trees were yearling catalpas, a hardy North American tree which grows readily and rapidly in New England soil and bears a large, handsomely formed leaf.

Harrisonburg Favors Compulsory Education

Harrisonburg, Va.—In a special election recently Harrisonburg decided in favor of compulsory education by a vote of 248 to 11. Harrisonburg is the second place in Virginia to vote on this question since the passage of the referendum or enabling act by the General Assembly of Virginia in 1908.

City Planners Will Inspect Kansas City

Dallas, Tex.—As many members of the incoming and outgoing city administration as can arrange to do so, together with members of the Dallas City Plan and Improvement League and other interested citizens, will some time during the next three weeks visit Kansas City to witness the work that has there been accomplished toward making that a better city in which to live. This was decided at the conference between George E. Kessler, the city planning engineer, and the new and old boards of municipal commissioners and officers of the City Plan and Improvement League. The suggestion to make the trip was an unexpected incident of the morning's proceedings, but no sooner had it been made than it met with a cordial response.

Plan Forty-Foot Lots and No Alleyways

Milwaukee, Wis.—The Milwaukee of the future will be a city without alleys and with lots 40 feet wide in the residence districts. During the discussion in the office of Tax Commissioner Schutz last week of the proposed new unit system for assessing real estate, it developed that members of the real estate board are already platting residence property with 40-foot lots and without alleys. It was stated that alleys are a disadvantage. They are disease breeders and refuse collectors. They detract from rather than add to the value of adjoining property. Many of the new subdivisions recently planned are without alleys and eventually all alleys in the city will be done away with. Existing ones will be added to adjoining property or done away with in some other manner.

Conducts Municipal Employment Agency with Success

Washington, D. C.—Municipal employment agencies are being conducted with great success in many European countries. Especially is this true in Norway, where the Government endeavors to keep its army of unemployed as small as possible. The following report from Emerson Taylor, American Consul at Stavanger, Norway, is of interest in this connection. "The Stavanger City Employment Bureau report for the year 1910 has just been made public, and indicates the bureau's increasing utility to both employers of labor and laborers seeking employment. The bureau is a municipal institution, maintained entirely at the expense of the city, under the management of a superintendent appointed by the city government. The salaries and all other expenses are paid out of the city treasury, and no charge is made either to the workmen seeking and finding employment by means of the bureau, or to the employers of labor when workmen are found for them. Although in 1910 a smaller number of men sought employment through the bureau than in 1909, in which year labor conditions were very unfavorable, employment was found for a larger number of men in 1910 than in 1909. The increase in business in the women's department was more marked than in that for men. When both departments were under one management the former was little used, but the city has now appointed a woman as manager.

Kenosha Opens New City Hall

Kenosha, Wis.—The city of Kenosha dedicated its new city hall last week with elaborate ceremonies, large delegations being present from Racine, Waukegan and other nearby cities, including a delegation of more than 50 members of the State Legislature.

Children Plant Twelve Thousand Trees

South Bend, Ind.—Twelve thousand flowering catalpa trees were planted by the South Bend school children in commemoration of Arbor Day. This number breaks all records for northern Indiana. Lectures on care of trees also played an important part in the celebration of the day.

To Have Censor for Moving Picture Shows

Harrisburg, Pa.—Among the measures passed last week was one by Representative Allen providing for an official censor of moving pictures. This establishes the office of Examiner, who is to inspect all films and stereopticon views and approve only those which do not tend to "debase or corrupt morals," and who is to be paid $3,000 a year. A fee of $1 for films and 10 cents for separate views is provided, the money to go to the State, and violation of the act is to be punished by a fine of from $50 to $100.

$500 Appropriation for School Gardens

Providence, R. I.—A resolution to appropriate $500 for the maintenance of school gardens, recommended by Superintendent of Schools Randall J. Condon, was adopted by the School Committee of the City Council after a short period of debate as to the propriety of appropriating money when the School Department was facing a deficit.

May Introduce Fly-Catching Birds in War on Mosquitoes

Trenton, N. J.—The suggestion has been made that the so-called fly-catching bird that eats both flies and mosquitoes be imported into the State in large numbers. It is believed that if the multiplication of these birds was encouraged in sections troubled with mosquitoes the nuisance would be materially decreased. The State Health Department is investigating the practicability of the scheme.

Free Libraries for Small Towns

Nashville, Tenn.—Plans are now on foot for the beginning of the free library system for rural towns and small cities in Tennessee. In 1909 the General Assembly enacted a law creating a free library commission and the present General Assembly made an appropriation of $2,500 per year to carry on the work. While the library has gotten a start during the last two years, practically nothing definite could be done until the present appropriation was made. If matters are settled satisfactorily at the State Capitol and the money is delivered into the hands of the library commission within a month or two all plans will be in readiness to proceed with the establishment of reading rooms and libraries throughout the State.

Prepares Course in Civics

Indianapolis, Ind.—An outline of study of civic conditions for the use of civic classes in grade schools has been prepared by Dr. Charles S. Woods, Secretary of the City Board of Health, and has been approved by C. N. Kendall, Superintendent of Schools. A copy of the outline and a letter is being mailed to each school principal. The course of study is intended to teach children the duties of the various city departments in assuring sanitary conditions and also to teach them to observe closely whether various contracts are being executed properly. As prepared by Dr. Woods, the outline plans close study of the disposal of garbage, calling attention to the contract of the Indianapolis Sanitary Company for removing it, and stating how garbage should be prepared for removal. Attention is also called to the fact that ashes, cans, etc., should be removed by the city contractors. Sewers, streets and alleys are suggested for close study, this to cover the sewer plan of the city and to teach the children what is necessary to keep streets and alleys in proper condition. There are also suggestions for caring for vacant lots and for improving the banks and beds of streams.

Fountains Will Be Placed in Schools

Portland, Ore.—Bubbling drinking fountains will be placed in all the public schools, according to a decision of the School Board, and School Architect Jones has been directed to prepare plans and specifications for the installation of such fountains in 14 of the school buildings at once. According to an ordinance the School Board is compelled to install fountains.

San Antonio Plans City Beautiful

San Antonio, Tex.—A call has been issued by the Civic Improvement League for a "city beautiful" convention to consist of delegations from all civic organizations and the public generally to consider ways and means for bringing to San Antonio a noted civic expert, or "city architect," to lay out comprehensive plans for a boulevard system, a beautiful San Antonio River and to beautify the city in other ways. The Real Estate Exchange, which has appointed a committee to co-operate with the Civic Improvement League, the Chamber of Commerce, the Farmers' Institute, the International Federation of Woman's Clubs, the City Association and other interested organizations are asked to be represented in force.

City Plans to Own Newspaper

Los Angeles, Cal.—Members of the City Council are planning the details of the municipal newspaper sanctioned under an amendment to the charter which carried by a large vote at the last election. Thirty thousand dollars will be required to finance the publication for the first year, and some of the Good Government officials are scratching their heads in perplexity because strong opposition has developed to such an appropriation. As at present planned, largely in line with the suggestions of ex-Mayor Dunlop of Hollywood, father of the idea, the paper is to be a weekly. It will be conducted by a municipal newspaper department to be under the control of an unpaid commission composed of three Councilmen. There will be no subscription price, but a copy will be furnished free to every registered voter of the city. Commercial advertising may be accepted at rates to be fixed by the commission. Political intelligence and news about subjects related to municipal affairs are to constitute the particular field. There are provisions permitting each political party to supply news matter for fixed amounts of space and requiring that the newspaper shall favor all enterprises for which the city stands.

Insure Students to Protect Bond Issue

Rogers, Ark.—To protect a bond issue of $35,000 the Board of Education, in order that a new high school building may be built, the lives of 18 young men were insured here to-day for $1,000 each. The board will pay the premiums on the policies.

Distribution of Trees

New Bedford, Mass.—Following close on the removal of the big elms from around the Free Public Library comes the activity of the Board of Trade and Horticultural Society, whose joint committee is raising funds for the distribution of trees. This committee has decided to follow the example of Providence, and set the trees out in residential districts, especially in the tenement neighborhoods. The residential portions of the city will be divided into sections, with a man in charge of each section, and an effort will be made to have the boys and girls of the city co-operate. The cost of setting up a tree and maintaining it for one year is $3, and the committee is asking for contributions of a tree instead of $1. One man has offered to give four or five trees provided they will be set out in front of his house.

Children's Bureau Asked of Council

Milwaukee, Wis.—Resolutions asking the appointment of a commission of not more than five members, to be chosen by the Mayor, "for the purpose of studying and investigating conditions relating to infant mortality and child welfare," were adopted at a recent meeting of representatives of fourteen charitable and philanthropic associations and societies. A committee was appointed to secure the introduction of the resolutions into the Common Council. Another resolution was adopted petitioning the Common Council, "without regard to party affiliations, to grant immediately as large an appropriation as possible for child welfare work, to be spent in co-operation with the commission." Wilbur C. Phillips, child welfare worker from New York, who has come to Milwaukee to aid in the establishment of a bureau, gave a short account of the work in New York and made suggestions for Milwaukee.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Taxation—Counterclaim.

Village of Charlotte vs. Keon.—In an action by a village for delinquent taxes a counterclaim for a debt due from the village is not available.—New York Supreme Court, 128 N. Y. S., 80.

Laying Out and Altering Streets

City of Hartford vs. Poindexter.—In laying out and altering streets and establishing building lines, municipal authorities act under special and limited authority as inferior tribunals, and hence there is no presumption in favor of their jurisdiction, which may be attacked collaterally, so that a recital of the performance of the things requisite to jurisdiction in the final proceedings of a City Council establishing the improvement and confirming an assessment therefor is insufficient to establish a prima facie case in a suit to foreclose the assessment lien, and the burden is on plaintiff to prove that all the proceedings taken were in accordance with the charter. The record of proceedings for a street improvement, taken in 1871, began with what purported to be a report of the highway committee in the matter of laying out a street and building lines on both sides of A. avenue. The preamble of the report purported to give the building line, and the report then stated that such line was described in a resolution establishing the same, reciting the resolution which was identical with one passed four years before by the Common Council establishing and laying out the same avenue, but containing no reference to building lines. Held, that the laying out of the avenue and the establishment of building lines were independent improvements, and, there being nothing to show publication of the necessary notice to property owners of the proposed vote establishing building lines, an assessment levied therefor was void.—Supreme Court of Errors of Connecticut, 79 A. R., 80.

Architects' Contract for City Building

Bernstein et al. vs. City of New York.—Architects' contract to furnish plans for a municipal building provided for a payment of 1 per cent. on completion of the drawings, etc., called for in a certain clause of the contract, which required that the estimated cost of the building should be within $48,000, and provided that the preliminary plans should be revised to meet a commissioner's requirements. The plans were abandoned, because, as so revised, they called for a building costing much more than $48,000. Held, that the architects are not entitled to the 1 per cent. fee provided for in the contract.—New York Supreme Court, 127 N. Y. S., 987.

Laying Pipe in Highway—Injunction.

Mayor and Council of City of Bayonne et al. vs. Mayor and Council of Borough of North Arlington.—Where a corporation asks a court of equity to restrain a municipality from interfering with it in the excavation of a public highway for the purpose of laying a water pipe across it as a part of a pipe line system, the corporation must show a legal right to use the street for the purpose intended. The right to regulate is not limited to mere supervision of the method of excavation, but implies the power to prohibit the disturbance of the public easement by one who has no lawful right to do it. A permit to lay water pipes in a public street can only be claimed by one legally entitled to use the street for such purpose, and if one, without such right, attempts to excavate a street for such purpose, a court of equity will not restrain a municipality having the power to regulate the use of streets from forcibly preventing the disturbance of the public easement. Assuming that a permit should be granted upon reasonable conditions to one lawfully entitled to lay such pipe in a public highway, the prevention of such use of the highway by one without a legal right is a lawful exercise of the power to regulate the use of such a highway.—Court of Errors and Appeals of New Jersey, 79 A. R., 358.

Street Assessments—Action to Invalidate

Whetsell et al. vs. City of Elkins et al.—As the section of a street between two cross streets or a cross street and an alley is the unit for paving, established by Section 34 of Chapter 47 of the Code of 1906, a bill to enjoin collection of special assessments made under that section, on the ground of lack of a sufficient petition to the council by property owners, must be confined to property on the particular section in respect to which the petition is insufficient and owners thereof, and cannot extend to property on more than one section or the owners thereof.—Supreme Court of Appeals of West Virginia, 70 S. E. R., 754.

License Tax—Recovery

Wood-Mendenhall Co. vs. City of Greer.—The powers of a municipal corporation must be exercised in strict conformity to the grant, and an ordinance imposing a license on a business is void if it does not graduate the license under Civil Code, 1902, requiring the license to be graduated according to the gross income of the person, etc., required to pay it or upon the amount of the capital stock invested in the business. The proper course for one claiming the invalidity of a license tax imposed upon a business is to pay the tax under protest and sue the city to recover the amount paid.—Supreme Court of South Carolina, 70 S. E. R., 724.

Defects in Streets—Contributory Negligence

Hysell vs. Central City.—If a traveler on a public road or street negligently sustain injuries from open and apparent defects therein, of which his observation prudently exercised would or ought to have informed him, he is guilty of contributory negligence, precluding recovering of damages for the injuries thus sustained. When the facts showing such contributory negligence are undisputed, the question becomes one of law for the court and not of fact for jury decision.—Supreme Court of Appeals of West Virginia, 70 S. E. R., 767.

Regulation of Rates for Public Service

Bluefield Waterworks & Improvement Co. et al. vs. City of Bluefield et al.—In the absence of a delegation thereof by the Legislature, express or necessarily implied, a municipal corporation has no power to regulate or control rates for public service, such as the furnishing of water, gas, or electricity, or the terms and conditions of contracts therefor, otherwise than by contract with the corporation or person rendering such service. Though such regulation is usually in the form of an ordinance, it is nevertheless contractual or administrative in character, and not enforceable by criminal penalties, except in those instances in which the Legislature has delegated to the municipal corporation power and authority to enforce compliance therewith in that way. Authority in a municipal charter to pass all ordinances necessary to the execution of the powers vested in the city and such as may be deemed necessary and proper to conserve the health, comfort, happiness and convenience of its inhabitants and enforce the same by reasonable fines and penalties does not include power to regulate or control such public service rates and conditions otherwise than by contract, nor to enforce regulation so made by fines or criminal penalties. Attempted enforcement of contractual regulations of public service, by criminal proceedings under an ordinance of a city not authorized by legislative enactment to adopt such means of enforcement, may be enjoined.—Supreme Court of Appeals of West Virginia, 70 S. E. R., 772.

Unskilled City Employee—Wages

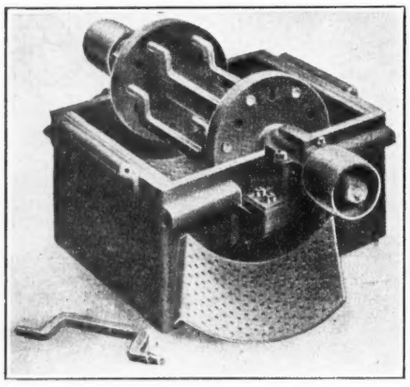
Walsh vs. City of New York.—Where plaintiff worked for a city as an unskilled laborer, and was paid when he actually worked, and if the weather did not permit him to work he was not paid, and he was laid off, held he was not entitled to wages for the days he did not work. That a laborer was removed or suspended because he was a henchman of one faction of a political party which was in disfavor with his superior officer, and that the formality of recertification of his name to the Civil Service Commission was not observed, putting him out of line for re-employment, would not render the city liable for wages while he did not work, especially where, within two months of his laying off, his name was placed upon the certified list.—New York Supreme Court, 127 N. Y. S., 972.

MUNICIPAL APPLIANCES

Plant for Grinding Garbage

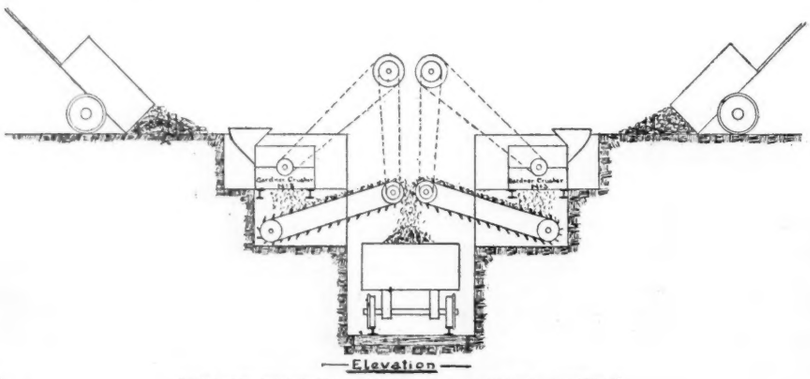
The accompanying illustrations show the construction and equipment of the Southwark garbage grinding plant referred to in the Municipal Journal, April 12, page 518. Southwark is a borough of London, England. To this plant is brought the ashes, garbage and refuse from the East Side of London. The different kinds of waste are not separated, but are placed in cans by the householder and brought to the grinding plant in carts. The plant has been established about four years and handles about 500 tons a day, the running time of the four Gardner crushers which are used to grind it being only five hours a day.

The sketch shows the general arrangement of the installation. A roof, not shown, covers the machinery. The crushers are elevated and located two on each side of a tramway over which the cars that carry away the finished product run. Carts deliver the waste near the hoppers of the crushers. At this point, such materials as have value, leather, bottles, iron articles, etc., are picked out by hand. The remainder is shoveled into the mouths of the crushers which have 12 by 14-inch openings. From the crusher the ground material is elevated and carried to the cars. The waste, when it arrives at the plant, has so much garbage in it that it has an offensive smell. The product is a fine material, grading from quarter-inch to powder. It has no disagreeable odor, the gases presumably being absorbed by the carbon contained in the ashes. The product has a yellowish color, much like earth discolored about a leak in a gaspipe. Although the waste contains considerable paper, not a trace of it is visible in the ground material. It is carried by the tram cars out into the farming districts where it finds a ready sale at a moderate price as a fertilizer. The power required to operate the plant is 100 hp, and the grinding operation so rapid—100 tons an hour—that it is not necessary to run the plant more than half a day to take care of the 500 tons, the usual amount collected.



GARDNER CRUSHER AND PULVERIZER

The Gardner crushers used in this plant are No. 3, the largest size. Their construction and operation is peculiar. The crusher consists of a very strong cast iron frame in two parts, a base and a top, which fit together with a machined joint. The sections are hinged to allow quick inspection and cleaning. The main shaft rests on bearings attached to the lower section. These bearings are specially constructed to stand the wear of the shaft, which revolves at 1000 revolutions a minute. Inside the casing are two circular cheek pieces, or disks, which are, in this instance, connected by four beaters or hammers shaped something like brace cranks. These beaters are the working part of the mechanism. They are pivoted to the disk, but when in operation, through centrifugal force, assume a position radial to the line of the main shaft. They are made of manganese steel. The bottom of the apparatus consists of a rounded perforated iron plate which acts as a screen for the discharge of the material. The wear on the screen is said not to be great, one screen generally lasting a year or more. On the inside of the upper casing are substantial rectangular blocks of steel which can be adjusted in relation to the hammers so as to regulate the fineness of the product. The crushing effect is produced not only by the hammers striking on the material, but by the grinding of the particles on each other. The high speed of the hammers is the factor of controlling importance, together with their pivoted construction, which permits them to give way a little to an unusual resistance.



GARBAGE GRINDING PLANT, SOUTHWARK, LONDON

New Motor Combination Hose Wagon

THE Northern Fire Apparatus Company, Minneapolis, Minn., has placed an auto combination hose and chemical apparatus on the market. The following are the main points in the specifications:

Motor: Four cylinders, water cooled, cast in pairs. All gears encased. Bore, 4¼x4½.

Power: Horsepower, 30, A. L. M. A. rating.

Speed: Will carry load of 2,500 pounds at 20 miles per hour.

Hose Capacity: 1,200 to 1,500 feet, 2½-inch cotton rubber-lined fire hose.

Crank Case: Made in two parts. Divided horizontally through plane of crank shaft center.

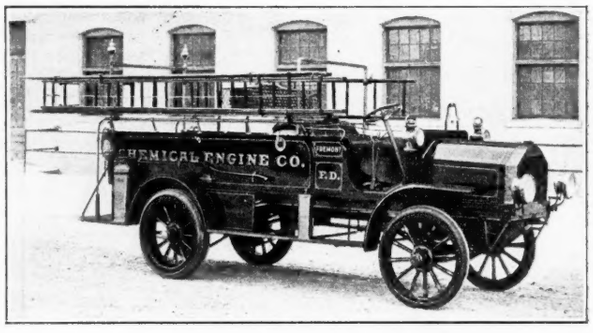
Crank Shaft: Drop forging ground to finish size.

Fly Wheel: Of liberal size and designed to receive cone clutch.

Clutch: Plunger type cone clutch, lined with thermoid friction. Operated by pedal lever.

Bearings: All anti-friction bearing metal.

Lubricating: Furnished by power-driven gear pump, which pumps oil from the oil reservoir from bottom of the motor to the crank case proper. Splash system supplying all parts.



NEW AUTO COMBINATION CHEMICAL

Cooling: By water circulated by gear-driven pump.

Transmission: Selective type transmission mounted on Timken roller bearings throughout.

Drive: Double chain drive.

Brakes: Two sets, one pair on the rear wheels and one pair on jack shafts, both external contracting type.

Control: Throttle and spark levers are located on top of steering wheel, engaged with sector, which is stationary and does not turn with wheel. The three speeds and reverse are operated by the lever at the right of the driver.

Ignition: Double.

Carburetor: Bennett.

Frame: Channel steel of ample size for load and severe service.

Springs: Front springs full elliptic, rear platform type of ample capacity.

Axles: Front 1¾-inch, Timken "I" beam type, with Timken bearings throughout. Rear, 2-inch dead square with wheels, mounted on Timken bearings.

Wheels: Artillery type.

Tires: Front tires are 36x3½ solid Hartford make. Rears are 36x3½ solid Hartford. Tread, 58 inches. Wheel base, 117 inches.

Chemical Equipment.

Cylinder: One 35-gallon, 40-gallon or 50-gallon capacity, seamless, steel cylinder, mounted back of seat.

Acid Receptacle: Best chemical lead held in heavily tinned red brass frame, so arranged that when cap is put on and wheel screwed down receptacle is hermetically sealed and cannot be prematurely discharged.

Method of Discharging: Release stopper by turning cap valve wheel to left and revolve cylinder. This gives positive action and perfect agitation.

Piping: Brass piping and valve so arranged that when cylinder is empty it can be refilled from 2½-inch intake connection, or plain water run right through instead of chemical.

Hose Basket: Woven wire reinforced with half round steel mounted over bed of wagon. Capacity, 200 feet.

The complement of small tools usually supplied with such apparatus also goes with it.

NEWS OF THE SOCIETIES

Texas Mayors' Association.—Dr. R. H. Greer, secretary, has issued a circular letter inviting eligible officers of all municipalities not belonging to the association to join it and participate in the benefits. At the next annual meeting, he says, special attention will be given to the question of beautifying Texas cities. Another topic to which special attention will be given is the initiative, referendum and recall. Another question that will have full and free discussion will be that of whether cities and towns should have concurrent jurisdiction with the county courts which would enable them to accomplish greater headway toward the building of good roads and better streets.

The secretary states that it is the desire to have a photographic exhibit of the cities and towns which will be represented in the association, showing public buildings, highways, street improvements, parks or anything that will have a tendency to inspire others to greater achievements along this line.

Society for the Promotion of Engineering Education.—The annual convention will be held at the Carnegie Technical School, Pittsburgh, Pa., June 27-29. Plans for the 1911 convention are now being made. The local committee to handle the details has just been appointed by the council of the society. The chairman of the committee is Dr. John H. Leete, dean of the engineering school at Tech. The other members are Charles F. Scott, of the Westinghouse Electric Company; Dr. Bishop, of the University of Pittsburgh, and Dean Connelley and Professor Mott, of the Carnegie Technical schools.

A new and interesting feature to be introduced this year will be the reunions of the faculty members from the various institutions represented in the convention with their graduates located in this district. The very large number of college men holding positions in the various local engineering plants makes it especially possible to schedule a convention feature of this description in Pittsburgh, with every prospect of success. Arrangements will also be made for visits and inspection trips to local points of interest. Prof. Henry H. Norris, Cornell University, is secretary.

International Association of Railway Special Agents and Police.—At the convention which closed in Chattanooga, April 20, the following officers were elected: President, M. B. Earle, Birmingham, special agent Southern Railway; first vice-president, Patrick J. Kindelon, San Francisco, chief special agent Southern Pacific; second vice-president, H. S. Harrod, Buffalo, special agent B. & E.; third vice-president, T. L. Phelps, Bluefield, W. Va.; secretary and treasurer, W. C. Pannell, Baltimore, special agent Chesapeake Steamship Company. Buffalo was selected by acclamation as the meeting place for 1912.

Following a paper by A. W. Worthington, D. M. & N. Railway, on the need of a central bureau of identification it was decided to establish such a bureau, and Mr. Worthington was appointed its head.

Detroit Engineering Society.—At the annual meeting, held April 21, officers for the coming year were elected as follows: President, Ralph Collamore; vice-presidents, Charles Y. Dixon (Amherstburg, Ont.) and Geo. H. Fenkell; secretary-treasurer, Frederick H. Mason, 612 Moffat Building, Detroit, Mich.

Calendar of Meetings

May 15-17.
National Conference on City Planning.—Philadelphia, Pa.—Flavel Shurtleff, Secretary, 19 Congress street, Boston, Mass.

May 17.
Massachusetts Highway Association.—Quarterly Meeting in conjunction with the New England Conference on Street Cleaning, Springfield, Mass.

May 17.
New England Conference on Street Cleaning.—Springfield, Mass.—Corresponding Officer, Carol Aronovici, 55 Eddy street, Providence, R. I.

May 18-19.
Ohio Society of Mechanical Steam and Electrical Engineers.—Annual Convention, Youngstown.—F. E. Sanborn, Secretary, Ohio State University, Columbus.

May 23-25.
National Fire Protection Association.—Annual Meeting, New York City.—F. H. Wentworth, Secretary, 87 Milk St., Boston.

May 23-26.
National Good Roads Association.—Fourth National Good Roads Congress, Birmingham, Ala.—J. A. Rountree, Secretary, Birmingham, Ala.

May 25-26.
League of Second and Third Class Cities of New York.—Poughkeepsie, N. Y.

May 29-June 2.
National Electric Light Association.—New York City.—T. C. Martin, Secretary, 31 West 39th St.

June 5-14.
National Probation Officers' Association.—Boston, Mass.—Roger N. Baldwin, Secretary, 903 Security Building, St. Louis, Mo.

June 6-10.
American Water Works Association.—Thirty-first Annual Convention, Powers Hotel, Rochester, N. Y.—John M. Diven, Secretary, 14 George street, Charleston, S. C.

June 7-14.
National Conference of Charities and Correction.—Boston, Mass.—Alexander Johnson, Secretary, Ft. Wayne, Ind.

June 7.
National Association for the Study and Prevention of Tuberculosis.—Denver, Col.—Dr. Livingston Farrand, Executive Secretary, 105 East Twenty-second street, New York City.

June 11-16.
International Association of Chiefs of Police.—Eighteenth Annual Convention, Rochester, N. Y.—Major Richard Sylvester, Superintendent of Police, Washington, D. C., President.

June 13-18.
New York State Association of Chiefs of Police.—Annual Convention, Rochester, N. Y.

June 13-16.
American Society of Civil Engineers.—Annual Convention, Chattanooga, Tennessee.—Charles Warren Hunt, Secretary, 220 West 57th St., New York.

June 21-22.
National Conference of Poor Law Officials.—Boston, Mass.—Dr. Robert W. Hill, President State Board of Charities, 105 East Twenty-second street, New York City.

August 15-18.
Firemen's Association of the State of New York.—Watertown, N. Y.—A. H. Otto, Secretary.

September 12-15.
International Association of Municipal Electricians.—Annual Convention, St. Paul, Minn.—Clarence R. George, Secretary, Houston, Tex.

September 19-22.
International Association of Fire Engineers.—Annual Convention, Racine, Wis.

September 19-22.
American Hospital Association.—New York City. J. N. E. Brown, M.D., Secretary, Toronto General Hospital, Can.

September 24-30.
International Congress on Tuberculosis.—Rome, Italy.—Professor Ascoli, Secretary-General., Via Lucina, Rome, Italy.

September 26-29.
American Society of Municipal Improvements.—Grand Rapids, Mich.—A. Prescott Folwell, Secretary, 239 West Thirty-ninth street, New York City.

October 4-6.
League of American Municipalities—Annual Convention, Atlanta, Ga.—John MacVicar, Secretary, Des Moines, Ia.

PERSONALS

ATKINSON, ROBERT, field secretary of the Playground Association of America, recently visited St. Paul, Minn., and addressed the recreation and education committee of the City Club.

CROSBY, W. O., has been appointed consulting engineer in connection with the Arrowrock dam of the U. S. Reclamation Service.

CROKER, EDWARD F., ex-Fire Chief of New York City, extended a reception at his new headquarters in the Thorley Building, Forty-sixth street and Fifth avenue, to numerous fire chiefs throughout the country.

CULVER, IRVING, has been elected Mayor of Delmar, Del.

DOW, JOHN B., is the new Mayor of Cookeville, Tenn.

EWART, C. W., has been appointed City Engineer of Aberdeen, Wash.

FOWLER, J. E., has been appointed Health Sergeant of Hutchinson, Kan.

GAMMON, L. H., has been re-elected Mayor of Bristol, Va.

GAY, C. W., has been engaged as Chief Engineer of the Lynn, Mass., Harbor Commission.

GILBERT, H. K., has been re-elected Mayor of Florence, S. C.

GRADY, W. J., has been re-elected Superintendent of the Light & Water Department of Denton, Texas.

HARLOW, GEORGE J., has been appointed Commissioner of Public Works of Mt. Vernon, N. Y.

HESS, W. J., has been elected Mayor of Redondo Beach, Calif.

HOWARD, CHAS. C., is the new President of the Board of Fire Commissioners of Mt. Vernon, N. Y.

KUHN, FRED H., Chief of the Fire Department of Plymouth, Ind., has invented a very ingenious and useful contrivance for fastening and instantly opening the doors of the fire station in case of fire. It is connected with the fire alarm and the first pull of the bell dislocates the fastenings and the four doors fly open.

O'NEIL, GEO., has been appointed Superintendent of the municipal electric light plant of Topeka, Kan.

PIERCE, A. P., is the new Mayor of Red Wing, Minn.

PRESTON, JAMES H., has been elected Mayor of Baltimore, Md.

SCHMIDLIN, JOHN E., has been re-elected director of playgrounds of Elizabeth, N. J.

STAMMS, NORMAN L., has been appointed Engineer of the Department of Wharves, Docks and Ferries of Philadelphia.

SYLVESTER, MAJ. RICHARD, in charge of the Police Department of Washington, D. C., and who is President of the International Association of Chiefs of Police, recently called on Chief of Police Quigley of the Rochester force. He was taken on a tour of inspection of the Exchange Street building, and expressed himself in complimentary terms regarding methods in vogue at headquarters, and the general condition of the building and the various devices in use.

THOMPSON, F. M., has been elected Mayor of Salisbury, N. C.

THOMPSON, DR. FRANK S., has been appointed a member of the Board of Health of Dayton, Ohio. The appointment is for five years. Dr. Thompson formerly served as dairy inspector, an office which he resigned owing to the demands of his private practice.

WEBER, WALTER H., was elected Mayor of Havre de Grace, Md., as the result of a hotly contested election.

TRADE NOTES

Cast Iron Pipe.—Birmingham: With the exception of a large letting in Kansas City, there is little tonnage before the trade. Shipments remain fairly good. Quotations: 4 to 6-inch, $22.50 to $23; 8 to 12-inch, $22 over 12-inch, average, $21. San Francisco: Business continues to come out in good volume both from municipalities and private corporations. New York: Buying continues extremely light. Prices show no indication of strengthening. Quotations: 6-inch, car loads, $21 to $22.

Lead.—Market is weak and neglected. Quotations: New York, 4.425c; St. Louis, 4.425c.

Street Cleaning.—Daniel J. Hauer, Consulting Engineer, Park Row Building, New York, N. Y., has published a brief pamphlet stating that he expects to devote considerable of his time to problems of street cleaning. He states that by improved methods and system the ordinary cost of street cleaning may be reduced and the streets kept cleaner. The troublesome snow problem, he says, can be easily cared for and the cost of removal reduced.

Road Machinery.—The Good Roads Machinery Company, New York City, have moved their office to 18 Old Slip, cor. Water street. They are the selling agents for the American Road Machine Company, the Climax Road Machine Company, Indiana Road Machine Company and Monarch Road Roller Company.

Gravity Concrete Mixer.—C. Raymond Weaver, of the Hains-Weaver Concrete Mixer Company, 13 Park Row, New York City, has issued an announcement to the effect that the partnership previously existing between C. Raymond Weaver and Peter C. Hains has been terminated. The Hains Concrete Machinery Company, Washington, D. C., has no connection with the Hains-Weaver Concrete Mixer Company. Each member of the former partnership has the right to manufacture and sell the gravity mixer which was the joint invention of C. Raymond Weaver and Peter C. Hains. The Hains-Weaver Concrete Mixer Company is selling Hains-Weaver mixers which are stated to have many improvements over the old style sold under the name of Hains mixers.

Rubber Tires.—The Fisk Rubber Company, Chicopee Falls, Mass., has been awarded a contract for equipping the chiefs' cars of the New York Fire Department with Fisk pneumatic tires. These tires were selected after tests were made under the direction of Commissioner Waldo, who uses a Lozier car equipped with Fisk tires. The Springfield, Mass., Fire Department also uses Fisk pneumatic tires.

Garbage Reduction.—The Sanitary Machine Company has been incorporated at Buffalo, N. Y., with a capital stock of $25,000 to manufacture machines for the automatic extraction of grease, fertilizer products and other by-products from city garbage and to build and operate garbage reduction plants in cities. W. D. Huntington, general manager of the Buffalo Fertilizer Company, is president of the new company; Henry Thieroff, chemist and superintendent of the Buffalo Fertilizer Company, vice-president; and William H. Hotchkiss, secretary and treasurer. The offices of the company are at 62 and 64 Pearl street, Buffalo.

Fire Alarm Boxes.—The Star Electric Company, Binghamton, N. Y., have received an order from the New York City Fire Department for 150 of their fire alarm boxes.

Testing Laboratory.—The Pittsburgh Testing Laboratory, Pittsburgh, Pa., has moved into its new five-story office and laboratory building at the corner of Seventh and Bedford avenues, where it will have more complete facilities for looking after its clients. This plant is claimed to be the largest of its kind in the country.

Sewer Pipe.—The attention of men interested in the sewer pipe business all over the country has centered upon a meeting of prominent men in the industry at Chicago two weeks ago. Among those present were: George R. Hill, president of the American Sewer Pipe Company; also Vice-President Stambaugh, Secretary A. S. McCombe and other officials connected with the Akron, O., works. There has been much complaint that the sewer pipe prices, during the past few years, have been so low that little or no profit has been left in the business. It is expected that a price agreement rather than a merger will be the result of the meeting.

PATENT CLAIMS

990,255. MANUFACTURE OF WATER-METER DISKS. William L. Gumprecht, New York, N. Y., assignor to Neptune Meter Co., New York, N. Y., a Corporation of New Jersey. Serial No. 487,727.

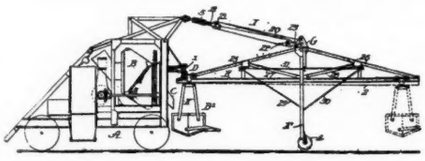
A meter disk comprising a laminated body of fibrous material and rubber and an outer protective coating of rubber, the whole being vulcanized.

990,521. PROCESS OF EXTINGUISHING FIRES. Max Breslauer, Charlottenburg, Germany, assignor to The Firm of Minimax Consolidated Limited, London, England, and Neuruppin, Germany. Serial No. 385,665.

The process of extinguishing fires from burning benzine, kerosene oil, petroleum and other easily inflammable liquids consisting in adding free uncombined bromine to said burning liquids, substantially as herein described.

990,513. MACHINE FOR USE IN STREET-PAVING WORK. Charles E. Bathrick, Chicago, Ill., assignor to Frederick C. Austin, Chicago, Ill. Serial No. 496,013.

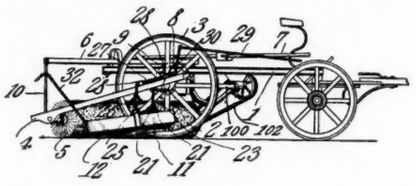
In a machine of the class set forth, the combination of a motor truck or carriage provided with a mixer; a boom attached at one end portion to the motor truck or carriage by hinge connecting means permitting the boom to swing laterally and also to have an up and down swing; a delivery hopper or receptacle for receiving material from the mixer and delivering the same at points more or less remote therefrom; a shifting connection between the delivery receptacle and the boom and movable along the latter in order to shift the position of the delivery receptacle in accordance with need; spring means interposed in connection between the motor truck or carriage and



the boom and adapted to normally maintain the boom in level or substantially level position to provide a suitable track or way; and a prop or leg device attached and depending from the boom, the prop or leg device being clear of the ground when the boom is maintained in level or substantially level position by the spring means, and being of a length to engage and bear upon the ground and sustain the weight of the boom and the loaded receptacle when the boom is depressed by reason of its weight augmented by the weight of the loaded receptacle, the spring means being adapted to yield to an extent to permit said depression on the part of the temporarily weighted boom, but opposing such depression with an increasing spring resistance suitable to restore the boom to its normal position after the boom has been suitably relieved of the weight of the load thereon.

990,322. ATTACHMENT FOR STREET-SWEEPERS. John Wiess, Chehalis, and William McArthur, Tenino, Wash. Serial No. 536,255.

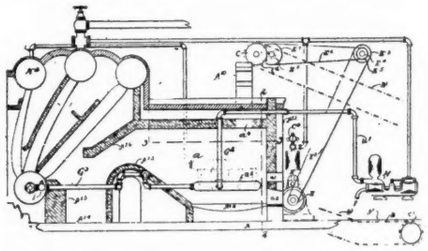
In a device of the class described, a sweeper comprising a frame; an axle carried by the frame; traction wheels mounted upon the axle; an arm rearwardly extended



from one end of the axle upon the exterior of one wheel; a rotary brush journaled at one end in the arm; a pan suspended from the sweeper beyond the wheel and in close proximity to one end of the brush; and means mounted upon the arm for dumping the pan.

990,688. APPARATUS FOR TREATING GARBAGE. John G. Walker, New York, N. Y., assignor to John G. Walker, Sewaren, N. J., and Adolph Kern, New York, N. Y. Serial No. 410,235.

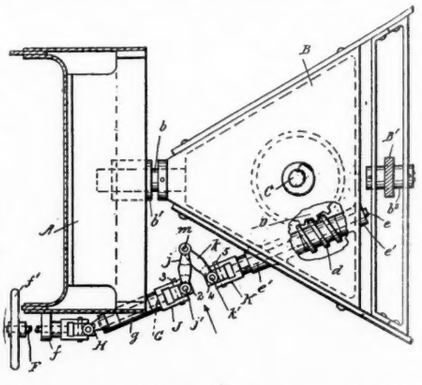
In a device of the class described, a furnace, a plurality of approximately flat grates one above the other within said fur-



nace, a high firebridge extending upward from the lowermost grate and in operable relation with both said grates, said firebridge being formed with a long inclined front face, a smoothly rounded top and a vertical rear wall, in combination with a curved and drooping arch above said firebridge and extending beyond the rear wall of said bridge, the whole arranged to provide a contracted passage for the gases, the product of combustion in said furnace.

990,794. STEERING MECHANISM FOR ROAD ENGINES. Gustaf Arvid Anderson, Waynesboro, Pa., assignor to The Geiser Manufacturing Company, Waynesboro, Pa. Serial No. 534,041.

In a steering mechanism, the combination, with stationary supports, of a rocking frame provided with pivots arranged horizontally and in line with each other and engaging with the stationary supports, a steering shaft journaled in the rocking frame crosswise between the said pivots, an



intermediate shaft carried by one of the stationary supports and arranged at an angle to the axis of said pivots, an operating shaft journaled in the rocking frame and normally arranged in line with the said intermediate shaft, universal coupling-members secured on the adjacent end portions of the operating shaft and the intermediate shaft, links pivoted together and to the said universal coupling-members, and driving mechanism connecting the operating shaft with the steering shaft.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS

Road Improvement in the United States in 1910 and 1911. Illustrated, 13 pp., Good Roads, April. 10 cts.

Highway Work in Saskatchewan. From annual report of F. J. Robinson. Illustrated, 5 pp., Canadian Engineer, April 27. 15 cts.

Highways in Massachusetts Illustrated, 7 pp., Public Officials' Magazine, March. 10 cts.

German Methods of Road Work. Paper before Iowa Engineering Society. By B. Schreiner. 1 1-2 pp., Good Roads, April. 10 cts.

Collinsville—East St. Louis Road. Paper before Illinois Society of Engineers and Surveyors. By A. N. Johnson. Illustrated, 1 1-2 pp., Good Roads, April. 10 cts.

Association, Road Improvement. Extracts from annual report. 1 1-2 pp., Surveying, April 21. 20 cts.

Commission, State Highway, and Trunk Lines. By W. W. Crosby. Illustrated, 3 pp., Southern Good Roads. April. 10 cts.

Road Question Viewed Generally. Paper before Second Irish Road Congress. By P. C. Cowan. 3 pp., Surveyor, April 21. 40 cts.

Highway Design, Relation Between Modern Traffic and the Alignment and Profile in. Paper before American Association for the Advancement of Science. By H. B. Drowne. 2 1-2 pp., Canadian Engineer, April 6. 15 cts.

The Bond of a Road. By J. S. Robeson. 3 pp., Municipal Engineering, May. 25 cts.

Improvement of Highways to Meet Modern Traffic Conditions. Paper before Institution of Civil engineers. By J. Walker-Smith. 1 p., Surveyor, April 7. 40 cts.

Suggestions Regarding Road Improvement. Paper before New Jersey Association of County Engineers. By F. J. Eppele. 2 1-2 pp., Good Roads, April. 10 cts.

Wheel Loads and Tire Widths. Summary of regulations in different counties. 5 pp., Surveyor, April 21. 40 cts.

Traffic Census on Highways. Methods of Taking. Paper before the American Association for the Advancement of Science. By A. H. Blanchard and I. W. Patterson. 3 pp., Canadian Engineer, April 6. 15 cts.

Tamping Macadam Road Bases. 1-3 p., Engineering Record, April 22. 10 cts.

Sand Clay Road, How to Build a. By M. G. Homes. 1 p., Southern Good Roads, April. 10 cts.

The First Sand Clay Road. By I. E. Watson. Illustrated, 2 pp., Southern Good Roads, April. 10 cts.

Bituminous Macadam, Gravel and Earth Object Lesson Roads Constructed by the U. S. Office of Public Roads. 3 1-2 pp., Engineering-Contracting, April 5. 10 cts.

Contract and Day Labor Methods of Doing Bituminous Road Work. From discussion before American Society of Civil Engineers. 3-4 p., Engineering-Contracting, April 26. 10 cts.

Road Construction with Bituminous Material by Mixing Methods. From discussion before American Society of Civil Engineers. 6 pp., Engineering-Contracting, April 26. 10 cts.

Some Details of Bituminous Macadam Construction. By J. T. Voshell. Paper before Ohio Engineering Society. 2 pp., Good Roads, April. 10 cts.

Tarring Roads and Eye Troubles. By Albert Scheible. 1-2 p., Municipal Journal, April 26. 10 cts.

Road Construction with Bituminous Materials by the Penetration Method. From discussion before American Society of Civil Engineers. 3 pp., Engineering-Contracting, April 19. 10 cts.

Present Status of the Use of Bituminous Materials in the Construction and Maintenance of Roads in the United States. Paper before American Association for the Advancement of Science. By A. H. Blanchard. 2 1-2 pp., Canadian Engineer, April 13. 15 cts. 2 1-2 pp., Good Roads, April. 10 cts.

Road Preservation and Dust Prevention by Surface Treatment with Tars, Heavy Oils, etc. From discussion before American Society of Civil Engineers. 5 pp., Engineering-Contracting, April 12. 10 cts.

Tarring and Gritting of Road Surfaces. By Wm. Oxtoby. 2 pp., Surveyor, April 14. 40 cts.

Maintenance, Permanent, and Skilled Supervision of Roads. By Curtis Hill. Illustrated, 3 pp., Southern Good Roads, April. 10 cts.

Development of Road Maintenance System for Menominee County, Michigan. By K. I. Sawyer. 1 p., Good Roads, April. 10 cts.

Culverts for Highways. Concrete. By Paul Chesterton. Illustrated, 4 pp., Cement World, April. 15 cts.

Culvert Construction. Paper before Commissioners' and Supervisors' Convention of Nebraska. By Peter Campbell. Illustrated, 3 pp., Pacific Municipalities, March. 20 cts.

Tree Planting on Highways. Paper before Kansas Engineering Society. By E. F. A. Reinisch. 1 p., Good Roads, April. 10 cts.

Stone Testing Machine, A Suggested Road. By R. J. Kirwan. Illustrated, 1 p., Surveyor, April 21. 40 cts.

Specifications, Paving. Proceedings of the Association for Standardizing Paving Specifications. 1-3 p., Municipal Journal, April 12. 10 cts.

Recommendations for Use in Chicago Street Paving Specifications. Report to Chicago Commission on City Expenditures. By S. Whinnery. 1-2 p., Engineering News, April 20. 15 cts.

Granite Block Specifications. Standard of the Association for Standardizing Paving Specifications. Coal tar, asphalt or cement grout filler; one year guarantee. 1 1-2 pp., Municipal Journal, April 26. 10 cts.

Wood Block Paving, Specifications for. By S. Whinnery. 1 1-2 pp., Engineering News, April 27. 15 cts.

Notes on Creosoted Wood Block Pavement. By Paul E. Green. 1 1-2 pp., Engineering News, April 20. 15 cts.

Creosoted Wood Block Pavement at Minneapolis. 1-3 p., Engineering Record, April 8. 10 cts.

Nine Years' Experience with Creosoted Wood Block Pavement, Minneapolis. By B. H. Durham. Illustrated, 2 pp., Engineering-Contracting, April 19. 10 cts.

Concrete Street Paving in Mason City, Ia. Paper before Iowa Engineering Society. By F. P. Wilson. 1 1-2 pp., Cement Age, April. 15 cts.

Cement Concrete in Highway Construction. Paper before Canadian Cement and Concrete Association. By W. A. McLean. 2 pp., Canadian Engineer, April 13. 15 cts. 1 p., Good Roads, April. 10 cts.

Cement Street Construction. By F. W. Hagloch. Illustrated, 2 pp., Cement World, April. 15 cts.

Concrete Properly Laid. Has advantages over other paving materials. By C. P. Chase. 5 pp., Concrete, April. 15 cts.

Standard Paving Specifications. Adopted this year by Association for Standardizing Paving Specifications. Concrete pavements, foundations and sidewalks; wood block. 1 p., Municipal Journal, April 12. 10 cts.

Rock Asphalt for Street Purposes. Paper before Institution of Municipal Engineers. By Edward Walker. 1 1-2 pp., Surveyor, April 14. 40 cts. 2 pp., Surveying, April 14. 20 cts. 1 p., Contract Journal, April 5. 20 cts.

Brick Paving Specifications. Standard of the Association for Standardizing Paving Specifications. Preparing sand cushion; expansion joints; grout, pitch and asphalt fillers. Illustrated, 2 pp., Municipal Journal, April 19. 10 cts.

Cracking of Cement Grouted Brick Pavements. Paper before Michigan Engineering Society. By E. R. Whitmore. 4 pp., Cement, March. 25 cts.

Brick Country Roadway at Newman, Ill. Illustrated, 1 1-2 pp., Clay Worker, April. 25 cts.

Specifications for New Standard Brick Rattler. Illustrated, 2 1-2 pp., Good Roads, April. 10 cts.

Pavement Situation in New York. 2 pp., Bulletin of General Contractors' Association, April.

Prices, Average Unit, of Pavements Constructed in 1910 in a Number of American Cities. 3 pp., Engineering-Contracting, April 5. 10 cts.

Private Street Works under the 1892 Act, Notes on. By M. B. Bennett. 2 1-2 pp., Surveyor, April 7. 40 cts.

Street Plan, Mitigating the Gridiron. Some good effects achieved in New York City. By F. K. Winkler. Illustrated, 18 pp., Architectural Record, May. 25 cts.

Sidewalk Construction, Some Fallacies of. By J. B. Landfield. 1 1-2 pp., Cement Age, April. 15 cts.

Asphaltic Oils Economical Wood Preservers. By F. W. Cherrington. 3 pp., Municipal Engineering, May. 25 cts.

Analyzing Coal Tar Creosote. From Bulletin American Railway Engineering and Maintenance of Way Association. Illustrated, 1 p., Municipal Journal, April 12. 10 cts.

Methods of Testing Coal Tar and Refined Tars, Oils and Pitches Derived Therefrom. From Journal of Industrial and Engineering Chemistry. By S. R. Church. Illustrated, 7 pp., Municipal Engineering, May. 25 cts.

SEWERAGE AND SANITATION

Sewer Construction at Regina, Saskatchewan, Can. Paper before American Society of Engineering Contractors. By W. R. Harris. Illustrated, 3 pp., Canadian Engineer, April 13. 15 cts. Illustrated, 3 pp., Cement, March. 25 cts.

Sewer Construction in St. Louis. Large brick and concrete sewers in tunnel through rock and sand and in open cut; using shield and air pressure. Eight miles of sewer under internal pressure. Tumbling basin and tunnel. Illustrated, 5 1-2 pp., Municipal Journal, May 3. 25 cts.

Difficult Reconstruction of a Large Sewer in Washington. By A. E. Phillips. Illustrated, 1 2-3 pp., Engineering Record, April 15. 10 cts.

Intercepting Sewer and Sewage Pumping Station. Carrying large pipe sewers across creeks at hydraulic gradient; reinforced concrete pipe in tunnel; deep pump well. By Robert Hooke, city engineer, Chattanooga, Tenn. Illustrated, 6 pp., Municipal Journal, May 3. 25 cts.

Thirty-Eighth Street Sewer, Minneapolis. Illustrated, 1 1-2 pp., Engineering Record, April 8. 10 cts.

For Better Sewerage Construction. 3-4 p., Municipal Journal, May 3. 25 cts.

Municipal Health—Disease Politic. Presumption versus scientific conclusion. By W. S. Rankin. 6 pp., Bulletin North Carolina Board of Health, February.

Methods and Cost of Deep Trenching by Machine at Glencoe, Ill. By D. E. Marsh. Illustrated, 1 1-2 pp., Engineering-Contracting, April 5. 10 cts.

Flow of Storm Water in Sewers, Maximum. Paper before Institute of Civil Engineers of Ireland. By P. H. McCarthy. 5 pp., Canadian Engineer, April 6. 15 cts.

Statistics of American Cities, Sewerage. Reports for 1910 from sixty large cities. Sewerage systems, pumping and purifying; sewer assessments. 13 pp., Municipal Journal, May 3. 25 cts.

Catch Basin Designs. Gratings and special forms of gutters; gratings or bars for curb openings; connection to sewer. Illustrated, 1 p., Municipal Journal, May 3. 25 cts.

Catch Basins in Newport. 1-4 p., Municipal Journal, May 3. 25 cts.

Sewer Gas Interceptor. 1 p., Surveying, April 21. 20 cts.

Deodorizing Sewer Gas. Illustrated, 1-4 p., Municipal Journal, May 3. 25 cts.

Sewer Pipe, Standard Tests of Drain Tile and. Paper before Iowa Engineering Society. By A. Marston and A. O. Anderson. 1 1-2 pp., Cement Age, April. 15 cts.

Standard Specifications for Tests of Drain Tile and Sewer Pipe. 1 p., Concrete, April. 15 cts. 2 1-2 pp., Clay Worker, April. 25 cts.

Concrete, Action of Sewage on. 3 pp., Cement Age, March. 15 cts.

Pumping in Great Britain, Electrical Sewage. By J. A. Seager. Illustrated, 4 pp., Engineering-Contracting, April 5. 10 cts.

Outlet, Underground Storm Sewer. 1-4 p., Municipal Journal, May 3. 25 cts.

Pollution, Acid Mine Drainage and. From annual report, Altoona, Pa., Board of Health. 1-2 p., Municipal Journal, April 12. 10 cts.

Sewage Disposal Experiments. Conducted in Philadelphia during past few years. Screening and sedimentation; contact; sprinkling and intermittent filters; sludge disposal. 2 1-2 pp., Municipal Journal, April 12. 10 cts.

Report on Philadelphia Sewage Purification Experiments. 1 3-4 pp., Engineering News, April 27. 15 cts.

Philadelphia Report on Sewage Disposal Investigations. 2-3 p., Engineering Record, April 8. 10 cts.

Methods and Results of Sewage Purification Experiments, Philadelphia, Pa. 2 1-2 pp., Engineering-Contracting, April 19. 10 cts.

Methods and Results of Sewage Sludge Studies, Philadelphia, Pa. 1 1-2 pp., Engineering-Contracting, April 26. 10 cts.

Philadelphia Sewage Disposal Experiments. 1-3 p., Municipal Journal, April 12. 10 cts.

Sewage Clarification. Fine mesh screen lessens sludge and scum; effect of time; baffles and scum boards in sedimentation. Philadelphia experiments. Illustrated, 1 1-4 pp., Municipal Journal, April 19. 10 cts.

Sprinkling Filter Experiments, Philadelphia Experiment Station. Various kinds and sizes of media; growths on and in filter beds; effect of ventilation; clogging and unloading; hypochlorite as cure for clogging. Illustrated, 3 pp., Municipal Journal, May 3. 25 cts.

Sewage Disposal with Respect to Offensive Odors. Paper before Congress of Technology. By G. W. Fuller. 3 pp., Engineering Record, April 15. 10 cts. 2 pp., Engineering News, April 20. 15 cts. 5 pp., Municipal Engineering, May. 25 cts.

Question of Sewage Disposal. Paper before League of California Municipalities. By N. G. Baker. 4 pp., Pacific Municipalities, March. 20 cts.

Purification of Sewage. By M. A. Puech. Illustrated, 11 pp., La Technique Sanitaire, April. 50 cts.

Darfield Sewage Disposal Works. Illustrated, 1 p., Contract Journal, April 5. 20 cts.

Massachusetts Experiment Station. 1-4 p., Municipal Journal, April 19. 10 cts.

Results of the Electrolytic Process of Sewage Purification at Santa Monica, Cal. 1 1-2 pp., Engineering-Contracting, April 19. 10 cts.

Operation of the Reading Sewage Disposal Plant. Illustrated, 1-2 p., Engineering Record, April 22. 10 cts.

Rise and Progress of Aerobic Methods of Sewage Disposal. Paper before Association of Managers of Sewage Disposal Works. By W. J. Dibdin. 1-2 p., Surveyor, March 31. 40 cts.

Creek Improvement, Squaw. Rectifying the stream in Lawton, Okla. Open conduit lined with reinforced concrete; forms, expansion joints, iron railing, bridges at street crossings. By Z. M. Scifres, city engineer. Illustrated, 2 pp., Municipal Journal, April 26. 10 cts. Illustrated, 2 1-2 pp., Municipal Engineering, May. 25 cts.

Health Boards, Functions of. Non-sanitary duties imposed upon them. Garbage disposal and plumbing inspection. 1-2 p., Municipal Journal, May 3. 25 cts.

Board of Health Records. 1-4 p., Municipal Journal, May 3. 25 cts.

Association of Georgia Health Boards. 1-4 p., Municipal Journal, May 3. 25 cts.

Public Health, Technology and the. By C. E. A. Winslow. 5 pp., Advance New England, April. 10 cts.

Profitable and Fruitless Lines of Endeavor in Public Health Work. Paper before Congress of Technology. By E. O. Jordan. 1 2-3 pp., Engineering Record, April 22. 10 cts.

Recent Advances in Sanitary Engineering. By N. D. Baker. 4 pp., Bulletin, North Carolina Board of Health, February.

Ordinances, Rules and Regulations Pertaining to Public Health, Municipal. 4 pp., Public Health Reports, April 7; 5 pp., April 14; 5 pp., April 21. 10 cts.

Dust, Prevention of Disease by the Elimination of. By F. L. Hoffman. 4 pp., American City, May. 10 cts.

Typhoid Fever at Lexington, Va., Epidemic of. Caused by leaks from sewer to water mains. By A. W. Freeman and Richard Messer. Illustrated, 1 1-2 pp., Engineering News, April 27. 15 cts.

Squirrels in California, Campaign Against Plague Infected. Illustrated, 5 pp., Public Health Reports, April 21. 10 cts.

Tuberculosis, Town and Its Relation to. 4 pp., Bulletin, North Carolina Board of Health, February.

Bacillus Carriers, How Shall We Guard Against. By H. E. Welch. 4 pp., Bulletin, Ohio State Board of Health, March.

Disinfecting Swimming Pools. Experiments and use of chloride of lime; danger of infection removed; economic advantages. By Melville C. Whipple. 1 1-2 pp., Municipal Journal, April 26. 10 cts.

WATER SUPPLY

Wells, Determining Yield of. Law of flow of ground water into wells; methods of making an actual test and results obtained. Paper before Illinois Water Supply Association. By A. N. Talbot. Illustrated, 1 1-2 pp., Municipal Journal, April 26. 10 cts.

Deep Drill Work in Nova Scotia. 2 pp., Canadian Engineer, April 6. 15 cts.

Reservoir, Progress on the Ashoken, New York Water Supply. Illustrated, 1 1-2 pp., Engineering Record, April 15. 10 cts.

Effects of Storage Reservoirs Upon Water Powers. By A. H. Perkins. Illustrated, 1 1-3 pp., Engineering Record, April 15. 10 cts.

Experiments in the Storage of River Water. Paper before Royal Institute of Public Health. By J. R. Currie. 8 pp., Journal, April. 60 cts.

Design of Reservoir Dams. Paper before Institute of Civil Engineers of Ireland. By F. C. Uren. Illustrated, 4 1-2 pp., Canadian Engineer, April 6. 15 cts.

Spillway, The. By C. A. Mees. Illustrated, 5 pp., Engineering Record, April 22. 10 cts.

Weirs on Porous Foundations and with Pervious Floors. By W. G. Blight. Illustrated, 1 1-2 pp., Engineering News, April 13. 15 cts.

Intake, Corrugated Iron Culvert Pipe Used for a Water Supply. Illustrated, 2-3 p., Engineering-Contracting, April 12. 10 cts.

The Relation of the Intake to Pure Water from the Great Lakes. Relative cost of long intakes, compared with purified supplies from short intakes. Paper before Illinois Water Supply Association. By C. B. Burdick. 1 2-3 pp., Engineering-Contracting, April 19. 10 cts.

Conduits, Material for Water. 1-3 p., Municipal Journal, April 12. 10 cts.

Steel Pipe for Water Main. 1-4 p., Municipal Journal, April 26. 10 cts.

Steel Pipes for Water Works. Paper before New England Water Works Association. By E. Kuichling. 5 pp., Canadian Engineer, April 13. 15 cts. 3 1-2 pp., April 20. 15 cts.

Rust in Service Pipes. 1-4 p., Municipal Journal, April 26. 10 cts.

Wooden Insulation Joints for Water Mains. By J. A. McKenna. Illustrated, 1 1-2 pp., Engineering Record, April 8. 10 cts.

Aqueduct Construction at the Ashoken Reservoir. Illustrated, 1 1-3 pp., Engineering Record, April 22. 10 cts.

Methods of Sinking a Wet Shaft on the Rondout Pressure Tunnel of the Catskill Aqueduct. From paper by J. P. Hogan before American Society of Civil Engineers. 5 pp., Engineering-Contracting, April 12. 10 cts. 1 1-3 pp., Engineering Record, April 8. 10 cts.

Shaft Sinking in Water Bearing Fissured Rock by Grouting the Fissures. 1 p., Engineering-Contracting, April 12. 10 cts.

Siphon, Foundry Brook Steel, Catskill Aqueduct. Illustrated, 2 pp., Engineering Record, April 15. 10 cts.

Siphon Spillways in Europe. By Adolph Ludin. Illustrated, 2 pp., Engineering News, April 20. 15 cts.

Methods Used in Obtaining Concrete of Maximum Density for the Westerly Standpipe. Paper before Boston Society of Civil Engineers. By A. B. McMillan. 1 1-2 pp., Canadian Engineer, April 6. 15 cts.

Corrosion of Iron and Steel Pipes. By A. S. Cushman, F. N. Speller and M. J. Falkenburg. 1 p., Engineering News, April 27. 15 cts.

Standpipe, Reinforced Concrete. U. S. Naval Station, Key West. Illustrated, 1-2 p., Engineering News, April 27. 15 cts.

Specifications for Reinforced Concrete Water Tanks. From report to American Railway Engineering and Maintenance of Way Association. Illustrated, 1 1-2 pp., Engineering-Contracting, April 12. 10 cts.

Flow of Water in Clean Iron Pipes. By A. E. Guy. 3 pp., Power, April 4. 5 cts.

Water-Finders, Experiments with. Paper before Royal Society of Arts. By J. Wertheimer. Illustrated, 2 1-2 pp., Canadian Engineer, April 6. 15 cts.

Rural Water Supply, Depletion and Pollution of. By H. Lemmoin-Cannon. 2 1-2 pp., Surveying, April 21. 20 cts.

Conservancy, Administrative Aspect of Water. Paper before Society of Engineers. By W. R. B. Wiseman. 3 1-2 pp., Surveyor, April 7. 40 cts. Illustrated, 4 pp., Surveying, April 7. 20 cts. 1 1-2 pp., Contract Journal, April 19. 20 cts.

Clean Water as a Municipal Asset. Paper before Central States Water Works Association. By G. C. Whipple. 4 pp., American City, April. 10 cts. 2 1-2 pp., Surveying, April 21. 20 cts.

Water Purification at Wilmington. Report of work done by new filtration plant; sponge filters for preliminary clarification; defective rate controlling device lowers efficiency; low cost of operation; sand cleaning machines. Illustrated, 1 2-3 pp., Municipal Journal, April 19. 10 cts.

Modern Methods of Purification of Public Water Supply. 3 pp., Canadian Engineer, April 27. 15 cts.

Portsmouth Water Works. New filter beds and covered reservoirs. Illustrated, 1 p., Surveyor, April 14. 40 cts.

Legislation Against Rapid Filtration. 1-3 p., Municipal Journal, April 19. 10 cts.

Ozone Plant at St. Petersburg, Russia. 1-3 p., Engineering Record, April 29. 10 cts.

Hypochlorite for Destroying Growths of Algae and Diatoms. By J. W. Ellms. 1 1-2 pp., Engineering Record, April 8. 10 cts.

Effect of Bleaching Powder upon Bacterial Life in Water. By J. W. Ellms. 2 pp., Engineering Record, April 29. 10 cts.

Operating Difficulties in the Hypochlorite Treatment. Illustrated, 1 p., Engineering Record, April 15. 10 cts.

Portable Emergency Hypochlorite Plant. Illustrated, 1-2 p., Engineering Record, April 22. 10 cts.

Disinfection of Water. By R. G. Perkins. 6 pp., Bulletin, Ohio State Board of Health, March.

Bacteriological Examination of Water, Properties of Some Culture Media Used in the. By J. F. Liverseege. 2 pp., Surveying. April 7. 20 cts.

Waste and Public Water Consumption. 1-3 p., Municipal Journal, April 26. 10 cts.

Depreciation in Water Works. By Leonard Metcalf. 2 1-2 pp., Public Service, April. 25 cts.

Delinquent Consumer, Town as a. 1-4 p., Municipal Journal, April 19. 10 cts.

Costs, Methods of Keeping, by the Engineers of the Pittsburg Filtration Work. 3 1-2 pp., Engineering-Contracting, April 12. 10 cts.

STREET LIGHTING AND POWER PLANTS

Street Lighting Investigation, Worcester. 2-3 p., Engineering Record, April 29. 10 cts.

Electric Street Lighting. By Albert Scheible. Illustrated, 1 1-2 pp., Electrical Review, April 22. 10 cts. 1 1-2 pp., April 15. 10 cts. 1 2-3 pp., April 8. 10 cts.

Public Gain from Improved Efficiency of Electric Lighting. By W. H. Blood, Jr. 4 pp., Municipal Engineering, May, 25 cts.

Gas Arc Street Lighting. Paper before New England Association of Gas Engineers. Illustrated, 1 p., American Gas Light Journal, April 24, 10 cts.

Decorative Public Lighting Grows in Public Favor. Illustrated. 11 pp., Illuminating Engineer, April. 20 cts.

Park Lighting. By E. L. Elliott. 4 pp., American City, April. 10 cts.

Lamps, New Metallic Filament. By G. S. Merrill. Illustrated, 24 pp., Journal Franklin Institute, April. 50 cts.

Electric Plant, Wallingford Municipal. 1-4 p., Municipal Journal, April 12. 10 cts.

Hygenic Aspects of Illumination and Recent Progress in Illuminating Engineering. Paper before Institute of Sanitary Engineers. By Leon Gaster. 2 pp., Surveyor, April 14. 40 cts.

FIRE DEPARTMENT

Fire Prevention as a Municipal Function. By R. Waldo, Commissioner New York Fire Department. 1. 1-2 pp., Survey, April 8. 10 cts.

Fire Department, Sketch of Hartford. Illustrated, 1 p., Fireman's Herald, April 8. 5 cts.

Oklahoma City's Fire System. Illustrated, 3-4 p., Municipal Journal, April 19. 10 cts.

High Pressure, Philadelphia. By J. E. Codman. 2 1-2 pp., Insurance Engineering, March. 25 cts.

Fire Risks, Hamburg and Its. Illustrated, 2 pp., Fireman's Herald, April 15. 5 cts.

Boston's Fire Dangers. High pressure system recommended. 4 pp., Insurance Engineering, March. 25 cts.

New York City's Fires. Work of public department. 7 pp., Insurance Engineering, March. 25 cts.

Asch Building Disaster Investigation. 1 p., Fireman's Herald, April 22. 5 cts.

Report on the Asch Building Fire, New York. Illustrated, 1 1-3 pp., Engineering Record, April 15. 10 cts.

Fire Underwriter's Report on the Asch Building Fire. Illustrated, 1 2-3 pp., Engineering News, April 13. 15 cts.

Smoke Worse Than Fire. By H. M. Wilson. 3 pp., American City, May. 10 cts.

GOVERNMENT AND FINANCE

Public Service Commission, Work for Engineers in Connection with. 2-3 p., Engineering News, April 27. 15 cts.

Public Service Corporations and Politics. By E. N. Wrightington. 3 pp., Public Service, April. 25 cts.

Relations of a Public Utility Company to the Public. By S. Murdock. Paper before Indiana Gas Association. 1 1-2 pp., American Gas Light Journal, April 10. 10 cts.

Valuations of Public Service Properties. By H. P. Gillette. 2 pp., Public Service, April. 25 cts.

Primaries in Chicago, People's. 3 pp., Review of Reviews, April. 25 cts.

Outlying Districts, City's Control of. By J. H. Gundlach. 3 pp., American City, May. 10 cts.

Excess Condemnation and Public Use. By A. W. Crawford. 1 2-3 pp., Real Estate News, April. 25 cts.

Information Bureau, City. 1-3 p., Municipal Journal, April 26. 10 cts.

Budget, Importance of the Municipal, as a Means for the Control of Expenditures. By Anson Herrick. 5 pp., Journal of Accountancy, April. 25 cts.

Accounting, Ideal Municipal. Paper before League of California Municipalities. By Wm. Dolge. 4 pp., Pacific Municipalities, March. 20 cts.

Work of the Merrian Commission in Chicago. 1 1-2 pp., Engineering-Contracting, April 5. 10 cts.

Slow Pay, New York City. 1-4 p., Municipal Journal, April 19. 10 cts.

STREET CLEANING AND REFUSE DISPOSAL

Street Cleaning Machine for Removing Sweepings from Gutters. 1-4 p., Municipal Journal, April 19. 10 cts.

Street Dust and Street Cleaning in Relation to Health, Comfort and Economy. By J. H. Landis. 5 pp., Bulletin, Ohio State Board of Health, March.

Fuel Briquets from Street Rubbish. Practice at St. Ouen, France, Southwark, England, and Amsterdam, Holland. 1-3 p., Municipal Journal, April 12. 10 cts.

Energy from Municipal Waste, Technology of Combustion and the Production of. By Frederick Meyer. 3 1-2 pp., La Technique Sanitaire, April. 50 cts.

Ashes, Removal of Domestic, at Rochester. 1-3 p., Municipal Journal, April 19. 10 cts.

Garbage Disposal, Control of. 1-2 p., Municipal Journal, May 3. 25 cts.

Value of New York's Garbage. Method of treating it; amount handled; costs and prices paid. 1 p., Municipal Journal, May 3. 25 cts.

TRAFFIC AND TRANSPORTATION

Transportation Problem of Greater Cleveland. Paper before Cleveland Engineering Society. By A. B. Dupont. Illustrated, 2 1-2 pp., Canadian Engineer, April 20. 15 cts.

West Side Freight Traffic Problem in New York City. Illustrated, 2 1-2 pp., Engineering News, April 13. 15 cts.

London Traffic. By H. R. Wilson. 1 1-2 pp., Engineering News, April 13. 15 cts.

Plan for Elimination of West Side Surface Tracks, New York City. Illustrated, 2 1-2 pp., Engineering-Contracting, April 26. 10 cts.

Subway Construction in New York City. By D. J. Hauer. Illustrated, 3 pp., Contractor, April 15. 15 cts.

Methods of Constructing and Sinking the Steel Tubes for the Traction Tunnel at La Salle Street, Chicago. Illustrated, 4 pp., Engineering-Contracting, April 5. 10 cts. Illustrated, 1 p., Engineering Record, April 15. 10 cts. 2-3 p., Engineering News, April 13. 15 cts.

Proposed Shuttle System of Subways for Chicago. Illustrated, 1 p., Engineering News, April 20. 15 cts.

Trolley Transit, Trackless. By C. O. Burge. 1 p., Engineering Record, April 29. 10 cts.

Surface Contact System of Tramways in Torquay, The "Dolter." Paper before Institution of Municipal and County Engineers. By H. A. Garrett. 1 1-2 pp., Surveyor, March 31. 40 cts. 1 p., Contract Journal, April 5. 20 cts. 2 pp., Canadian Engineer, April 20. 15 cts.

BRIDGES

Quebec Bridge. Illustrated, 1 p., Engineering Record, April 22. 10 cts.

Designs for the New Quebec Bridge, and the Accepted Design. Illustrated, 2 1-2 pp., Engineering News, April 20. 15 cts.

Bridge Construction in America, Some Observations on Recent. By H. S. Jacoby. 12 pp., Cornell Civil Engineer, April. 25 cts.

Viaduct, The Dallas-Oak Cliff. By V. H. Cochrane. Illustrated, 5 pp., Engineering-Contracting, April 5. 10 cts.

Lift-Span of the Hawthorne Avenue Bridge, Portland, Ore. Illustrated, 1 1-3 pp., Engineering Record, April 8. 10 cts.

Masonry Bridge, Improving an Old. By J. H. Garrett. Illustrated, 2 1-2 pp., Surveying, April 21. 20 cts.

Concrete Truss Bridge with 80-foot Span. Illustrated, 1 1-3 pp., Engineering Record, April 15. 10 cts.

Adaptation of Concrete to Long Span Bridges. Paper before Canadian Cement and Concrete Association. By F. Barber. 3 pp., Canadian Engineer, April 13. 15 cts. 1 1-2 pp., Engineering-Contracting, April 26. 10 cts.

Characteristics of Long-Span Concrete Bridges. Paper before Canadian Cement and Concrete Association. By Frank Barber. 1 2-3 pp., Engineering Record, April 8. 10 cts.

Concrete Bridges and Culverts in Iowa. 1 p., Engineering Record, April 8. 10 cts.

Reinforced Concrete Arch Bridge with Separately Molded Members. Illustrated, 1 p., Engineering News, April 13. 15 cts.

Steel Bridges, Standard American Methods of Erecting. By F. W. Skinner. Illustrated, 13 pp., Cornell Civil Engineer, April. 25 cts.

Main Street Steel Arch Viaduct Over O. K. Creek Valley, Kansas City, Mo. By Kenneth Hartley. Illustrated, 1 1-2 pp., Engineering News, April 13. 15 cts.

Suspension Bridge with Flat Cable of Riveted Plate Construction. Illustrated, 1 p., Engineering News, April 13. 15 cts.

Centering for the 281-foot Concrete Arch, Monroe Street Bridge, Spokane, Wash. Illustrated, 1 1-2 pp., Engineering-Contracting, April 19. 10 cts. Illustrated, 1 2-3 pp., Engineering Record, April 29. 10 cts.

Steel Centering Used in the Construction of the Rocky River Bridge, Cleveland, O. Paper before American Society of Civil Engineers. By W. J. Watson. Illustrated, 9 pp., Proceedings, April. $1.00.

Piers, Some Mistakes and Mishaps in Designing and Constructing Foundations for Bridge. Paper before Engineering Society of Western Pennsylvania. By E. K. Morse. 5 pp., Engineering-Contracting, April 19. 10 cts.

Ferro-Concrete Pier Construction. From paper before Concrete Institute. By C. Percy Taylor. 2 pp., Surveyor, April 14. 40 cts.

MISCELLANEOUS

Civic Advance, Albany's. By W. B. Jones. Illustrated, 5 pp., American City, April. 10 cts.

The Pageant of the Perfect City. By W. C. Langdon. Illustrated, 16 pp., Playground, April. 25 cts.

Bucarest: A New Modern City in the Making. Illustrated, 5 pp., American City, May. 10 cts.

Municipal Improvements in Mexico. Encouraged by Federal Government; practically all by United States contractors. Water supply a difficult problem. Paving and gas. By W. D. Hornaday. 1 p., Municipal Journal, April 26. 10 cts.

Municipal Work at Prahran, Melbourne. From city surveyor's report. Illustrated, 2 pp., Surveyor, April 7. 40 cts.

Municipal Engineering Works, Torquay. Paper before Municipal and County Engineers. By H. A. Garrett. Illustrated, 6 pp., Surveyor, March 31. 40 cts. Illustrated, 3 pp., Contract Journal, March 29. 20 cts.

Development of Des Moines. By R. F. Weirick. Illustrated, 7 pp., American City, May. 10 cts.

Building, Municipal, Trenton, N. J. Illustrated, 9 pp., Architecture and Building, March. 20 cts.

Park Entrance and Public Comfort Station. Ornamental brick and stone structure, under which are shower baths and toilet rooms; details of construction and arrangement. By Chas. C. Casey. Illustrated. 2 3-4 pp., Municipal Journal, April 12. 10 cts.

Water Terminals, Development of New York City's. Communication from Calvin Tomkins. Commissioner of Docks. 1 p., Engineering News, April 13. 15 cts.

House Crowding and House Limitation. By Raymond Unwin. Illustrated, 3 pp., Municipal Journal, April 15. 15 cts.

Playgrounds, Statistics of. 10 pp., Playground, April. 25 cts.

Current Development of Municipal Recreation. By E. B. Mero. Illustrated, 4 pp., American City, April. 10 cts.

Play and Recreation Movement. By E. S. Martin. 7 pp., Bulletin, Ohio State Board of Health, March.

Trees, City's Duty to Its. By Wm. Solotaroff. Illustrated, 3 pp., American City, April. 10 cts.

Smoke Abatement Methods and Progress in Chicago. From report by Paul S. Bird, city smoke inspector. 1 2-3 pp., Engineering Record, April 15. 10 cts. 1 p., Engineering Record, April 22. 10 cts.

Drinking Fountain in Cambridge, Cost of. 1-4 p., Municipal Journal, April 19. 10 cts.

Automobile, Municipal Regulation of the. Paper before Nova Scotia Union of Municipalities. By L. H. Fonerty. 1 1-2 pp., Canadian Municipal Journal, May. 10 cts.

Municipal Control of Motor Vehicles. Paper before Nova Scotia Union of Municipalities. By A. M. McGregor. 2 1-2 pp., Canadian Municipal Journal, May. 10 cts.

Mayors, State Conference of. 1-4 p., Municipal Journal, April 19. 10 cts.

Testing Laboratory for the City of New York, General. 1-2 p., Engineering News, April 27. 15 cts.

Contracting Practice. By D. V. Moore. 2 1-2 pp., Municipal Engineering, May. 25 cts.

Report of the Committee on Uniform Contracts to the American Society of Engineering Contractors. 10 pp., Journal, March.

Profitable Refinements in Contractor's Compressed Air Plants. By Frank Richards. Illustrated, 2 1-2 pp., Engineering News, April 20. 15 cts.

Foundations, Experience in Constructing Sub-Structures and. From paper before Engineers' Society of Western Pennsylvania. By E. K. Morse. 1 1-3 pp., Engineering Record, April 15. 10 cts.

Drilling, Novel Method of Diamond, Using Cement Grout Instead of Steel Casing. Illustrated, 2 pp., Engineering-Contracting, April 26. 10 cts.

Paint, Rust Proof Slag. By E. C. E. Lord. 1-3 p., Engineering Record, April 29. 10 cts.

Cost Keeping System, Some Notes on. 1 1-2 pp., Contractor, April 15. 15 cts.

Civil Engineers, Licensing of. Bill introduced in the Alabama Legislature. 9 pp., Proceedings Engineering Association of the South, March. 50 cts. Resolution adopted by the Board of Direction of the American Society of Civil Engineers, 11 pp., Proceedings Engineering Association of the South, March. 50 cts.

Engineering School Graduate; His Strength and His Weakness. Paper before Congress of Technology. By H. P. Talbot. 3-4 p., Engineering News, April 20. 15 cts.

Massachusetts Institute of Technology. 1-4 p., Municipal Journal, April 19. 10 cts.

BOOK REVIEW

Municipal Chemistry. A series of thirty lectures by experts on the application of the principles of chemistry to the city, delivered at the College of the City of New York, 1910. Edited by Charles Baskerville. McGraw-Hill Book Company, New York. 1911. Cloth, 6½ by 9½, 526 pp. Price, $5.

The thirty lectures comprising the chapters of this work were open to the public as well as to students, the latter doing laboratory work in connection with them, hence are somewhat popular in their nature. They are extremely interesting to the student of city affairs, and he need not be deterred from reading them through lack of knowledge of any but elementary chemical principles. The science of municipal chemistry, as defined by this work, involves chemical work, but deals largely with engineering matters. An introductory lecture by the Editor explains how the growth of cities and the consequent density of population have brought about the new problems, which are explained in the later lectures. The importance of pure water supply is indicated by the choice of drinking water and disease as the first topic for discussion. The water supply of New York is described and methods of purification in use elsewhere. The milk question is discussed by T. C. Darlington, ex-Commissioner of Health, New York. Lectures on pure food and food adulteration naturally follow. The adulteration of drugs, methods of detecting it and drug-forming agents are given in three chapters.

Showing the wide scope of the work, comes the subject of streets, prevailing forms of pavement construction being described. This leads up to the discussion of street sanitation, street cleaning and the various methods of disposing of garbage. The topics treated of in the rest of the book have less connection with each other. They are: Sewage disposal, illuminating gas, smoke, ventilation, personal hygiene, textile materials, combustibles and explosives, paint, corrosion of iron and steel, cement and concrete, parks, gardens and playgrounds. As nearly all of the lecturers were men connected in some way with the New York City government, the book is a fairly complete account of the practices in that city. The book should be a valuable one for the members of boards of health and other city officials.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

State	City	Received Until	Nature of Work	Address Inquiries to
STREET IMPROVEMENTS				
Pennsylvania	Altoona	May 12, 3 p.m.	Constr. about 85,000 sq. yds. sheet asphalt, asphalt block and brick paving	W. M. C. Craine, Pres. B. P. Wks.
Florida	Jacksonville	May 12, 2:30 p.m.	Grading, curbing and paving with vitrified blocks on some standard brand various streets	Philip Prioleau, City Engr.
Indiana	Rushville	May 13	Constructing gravel road 36,830 ft. long	Joint Board Commissioners.
Ohio	Fort Meigs	May 13, 2 p.m.	Constr. tar macadam roadway and constr. concrete sidewalks.	C. W. Shoemaker, Sec'y Comnrs.
Iowa	Harlan	May 15, 8 p.m.	Constructing about 7,000 lin. ft. of concrete curb and gutter; 15,000 sq. yds. concrete pavement	O. F. Graves, City Clk.
Kentucky	Catlettsburg	May 15, 6 p.m.	Improving portions of various streets, including 14,555 lin. ft. curb and gutter and 20,305 sq. yds. paving	H. Chatfield, City Clerk.
New York	Lackawanna	May 15, 8 p.m.	Paving with vitrified brick portion of Ridge Road	John J. Monaghan, City Clerk.
California	Lodi	May 15	Macadamizing streets, cost of work about $42,432.65	City Clerk.
Iowa	Council Bluffs	May 15, 5 p.m.	Constructing about 1,611 lin. ft. combination curb and gutter, concrete 6 inches thick	Chas. J. Duff, City Clerk.
North Dakota	Carrington	May 15	Grading roads for year 1911	C. W. Burnham, County Auditor.
Michigan	Port Hope	May 15, noon	Constructing 5 lin. miles concrete sidewalks and crossings	J. W. Sanders, Town Clerk.
Wisconsin	Waukesha	May 15	Constr. about 4,620 sq. yds. asphalt macadam pavement; 270 sq. yds. brick gutters; 170 lin. ft. storm sewers; 4,796 lin. ft. concrete curb and gutter	Morgan R. Butler, City Engr.
New York	Yonkers	May 15, 3:30 p.m.	Regulating, grad. and otherwise improv. various streets	James V. Mahony, Secy. Bd. C. &S.
Missouri	Webb City	May 15, 5 p.m.	Constr. 8,865 sq. ft. concrete sidewalk; 4,556 lin. ft. concrete combined curb and gutter; 2,500 sq. yds. brick block pavement, 11,744 sq. yds. asphalt macadam pavement	A. J. McKenzie, City Engr.
Michigan	Kalamazoo	May 15	Constr. 9,100 sq. yds. brick pavement on 6-in. concrete	C. L. Miller, City Clerk.
Ohio	Greenwich	May 16	Excavating about 3,435 cu. yds., paving 11,709 sq. yds. water-bound macadam.	I. H. Daniels, Village Clerk.
Pennsylvania	Harrisburg	May 16, noon	Paving various streets with sheet asphalt or vitrified brick; cost of work about $80,400	W. W. Caldwell, Commissioner.
Kentucky	Louisville	May 16, 2 p.m.	Improving portion of Fulton street & pav. with granite block	Roger G. McGrath, Secy. B. P. Wks.
New Jersey	Elizabeth	May 16, 3:30 p.m.	Constructing 27,594 sq. yds. asphalt concrete,, macadam or bitulithic pavements, 3,230 lin. ft. concrete retaining slab, and 600 tons crushed stone	Jacob L. Bauer, County Engr.
Tennessee	Memphis	May 16	Constructing 5.1 mi. gravel paving, 3.9 mi. tar macadam, 1.4 vitrified brick, 2.9 wood block or bit. and ½ mi. old stone	Geo. C. Love, Comr. Dept. Sts
Ohio	Columbus	May 17	Grading and macadamizing various roads in Franklin County	County Commissioners.
New York	Buffalo	May 17, 11 a.m.	Paving and repaving various streets and alleys	Francis G. Ward, Commissioner.
Minnesota	Little Falls	May 17, 8 p.m.	Paving with creosoted wood blocks the Boardway wagon bridge over Mississippi river	Fred Cary, City Clerk.
Indiana	Ft. Wayne	May 18, 7:30 p.m.	Constr. cement sidew. in 14 sts.; and paving various streets	H. W. Becker, Clk. Bd. Pub. Wks.
Ohio	Cincinnati	May 19, noon	Constr. Compton rd. in Hamilton Co.; mac. exten. of Struble rd	Stanley Struble, Pres. Co. Comrs.
New Jersey	Camden	May 19, 8 p.m.	Constructing cement sidewalks and driveways	Joshua C. Haines, Chm. Police Com.
Arizona	Phoenix	May 20	Constr. territorial road from Tucson to Bisbee	Robt. W. Craig, Secy. Bd. Control.
Ontario, Can	Kingston	May 20, noon	Constructing 6,160 sq. yds. pavement; 2,276 lin. ft. curb and gut	H. B. R. Craig, City Engineer.
New York	Chatham	May 20	Constructing a section of highway known as Rowe Hill	A. P. Tripp, Town Clerk.
Ohio	Cleveland	May 20, 11 a.m.	Grading, draining and improving portion of Settlement Road	John F. Goldenbogen, Clk. B. C. C.
Ohio	New Philadelphia	May 22	Paving the New Cumberland Road with brick	City Clerk.
Ohio	Cincinnati	May 22, noon	Grade, cement park lot surrounding Public School	C. W. Handman, Business Manager.
New York	Auburn	May 23	Constructing subways in portion of Washington street and paving same with vitrified brick	J. S. Hanlon, City Clerk.
Ohio	Bowling Green	May 23, 1 p.m.	Grading, draining and macadamizing county road	F. W. Tean, County Auditor.
Ohio	Dayton	May 24, noon	Paving 16 streets and 2 alleys	Budroe, Sec'y Bd. Pub. Service.
Mississippi	Hazlehurst	June 1	Constructing 58 miles of gravel roads in Copiah County	The George Company, Ran. Bldg. Memphis, Tenn.
Indiana	Monticello	June 7, noon	Construct. a rock road on County line bet. White & Carrol Cos.	A. G. Fisher, County Auditor.
SEWERAGE				
N. B. Can	St. John	May 12	Furn. vit. salt glazed sewer pipe for the village of Fairville	Gilbert C. Murdoch, County Engr.
Alabama	Auburn	May 15, 8 p.m.	Constructing about 7,423 ft. 8-in. sanitary sewers	J. W. Wright, Mayor.
New York	Batavia	May 15, 10 a.m.	Constructing sewage disposal plant	K. B. Mathes, Chm. Bd. Sew. Com
Oregon	The Dalles	May 15	Construct. a section of Dist. No. 1 sewer system, cost about $225,000	L. T. Boyle, City Engineer.
South Dakota	Aberdeen	May 15, 8 p.m.	Construct. 1,860 ft. of 8 and 12-in. pipe sewers	F. W. Raymond, City Auditor.
Nebraska	South Auburn	May 15, 6 p.m.	Constructing about 1,400 ft. of 8-in. sewer	City Clerk.
Indiana	Auburn	May 15, 7:30 p.m.	Constructing about 10,000 ft. of from 20-in. vitrified to 42-in. concrete storm sewer	E. O. Little, City Clk.
Ohio	Xenia	May 15	Constructing sanitary sewer system on the new Greene Co. Children's Home grounds	Walter L. Dean, County Aud
Alta, Can	Edmonton	May 15, 3 p.m.	Constructing in tunnel a concrete sewer 10 ft. 6 in. in internal diameter and about 3,290 ft. long	A. J. Latornell, City Engineer.
New York	Fulton	May 15, 9 a.m.	Construct. 8,500 ft. of 8-in. vitrified pipe sewer; 900 ft. 10-in., 4,500 ft. 7.6-in., 20 manholes, 14 flush tanks, 400 Y branches.	Board of Public Works.
Ontario, Can	N. Toronto	May 15, 6 p.m.	Constructing main sanitary sewer pipes, manholes, etc., in various streets	A. J. Brown, Mayor.
Virginia	Norfolk	May 16, 12:30 p.m.	Installing 3 electrically driven sewer pumps, including electric apparatus, switchboard, etc	W. T. Brooker, City Engr.
Wisconsin	Reedsburg	May 17	Constr. 3,000 lin. ft. of 18 and 30-in. trunk sewers	A. H. Huebig, City Clerk.
Wisconsin	Antigo	May 17, 2 p.m.	Constr. 11,537 ft. of 10, 18, 20 and 24- in. pipe sewer and dis. plt.	G. O. Palmiter, City Clerk.
Wisconsin	Baraboo	May 17	Constructing trunk sewers, 3,000 lin. ft. 30 and 27-in. pipe	A. H. Huebing, City Clerk.
New Mexico	East Las Vegas	May 17, 4 p.m.	Constr. 19,750 lin. ft. 8-in. vitrified sewer; 3,350 lin. ft. 10-in. and 100 lin. ft. 15-in.; 50 manholes; 12 single flush tanks com.	Chas. Tamme, City Clerk
Ohio	E. Youngstown	May 22, noon	Constructing sanitary sewer	J. P. Carney, Village Clerk.
Oklahoma	Muskogee	May 23	Constr. 21,200 ft. of 48-in. sewer pipe; 6,500 of 45-in. and 7,100 of 42-in. Alternate bids for two ring brick with vitrified invert and manufactured concrete pipe	City Clerk.
Ohio	Amherst	May 23	Constr. a small sewer system and sewage disposal plant	C. G. Aschenbach, City Clerk.
Maryland	Frederick	May 24	Constr. about 4,000 lin. ft. 6-in. to 42-in. sewers with inlets, m.h.	J. Edward Schell, Mayor.
Pennsylvania	Williamsport	May 24	Constructing storm water sewers in various streets	J. J. Galbraith, City Clerk.
New York	Binghamton	May 24	Constructing sanitary sewers in various streets, about $15,000.	Board of Contract and Supply.
Ohio	Dayton	May 24, noon	Constructing sanitary and storm sewers in various streets	J. C. Ely, Dir. Pub. Service.
Kansas	Leavenworth	May 31, noon	Constructing main storm water drain in the college section	Capt. John S. Winn, Act. Q., U.S.A.
New York	S. Glens Falls	June 1	Constructing a sewer system and disposal plant	C. W. Skym, Village Clerk.
New York	Fort Hamilton	June 2, 11 a.m.	Constructing a sanitary sewer	Constructing Quartermaster.
California	**San Jose**	**July 3**	**Construct septic tank for County hospital**	**City Clerk.**

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
WATER SUPPLY				
Ohio	Rockport	May 12	Constructing water mains	F. Feuchter, Clerk.
Iowa	Sioux City	May 13, 10 a.m.	Furnishing valves and hydrants	G. B. Healy, Supt. P. & P. Prop.
Massachusetts	Holyoke	May 15, noon.	Constr. a conc. dam across Manh. Brook in Southampton	Water Commissioners.
Massachusetts	Pittsfield	May 15, 2 p.m.	Laying water pipes	Board Public Works.
Iowa	Tipton	May 15, 7:30 p.m.	Drilling an artesian well	C. H. Foy, City Clerk.
New York	New York	May 16, 11 a.m.	Construct. portions of the city tunnel of the Catskill aqueduct	Chas. Strauss, Pres. Bd. W. Sup.
Minnesota	Eveleth	May 16	Furn. 12,500,000 gal. capacity, high duty pumping engine of the crank and flywheel type	D. P. McIntyre, City Clerk.
California	Fort Mason	May 17, 11 a.m.	Constr. a 6,000,000-gal. reinforced concrete reservoir	Col. Geo. McK. Williamson, Con.Q.M
Michigan	Marquette	May 20	Building 2 concrete dams on Dead river and other improvements to the hydroelectric plant. Cost about $100,000	Chas. Retallic, Supt. L. & P. Com
Ohio	Silverton	May 22	Laying a 6-in. water main in portions of several streets	A. A. Sprague, Village Clerk.
Minnesota	N. Mankato	May 22, 7:30 p.m.	Constructing a water works system. Alternate bids on electric pumping equipment and gasoline. Separate bids on reservoirs, pump house, pumping equipment, water mains and well	L. Donohue, Village Clerk.
California	San Diego	May 22	Furn. 8,536 lengths of c. i. water pipe from 8 to 36-in.	P. E. Woods, Supt. Water Dept.
Illinois	Stanford	May 22	Constructing water works system	W. C. Murphy, Village Clerk.
New York	New York	May 23, 11 a.m.	Completing the Hudson siphon	Board Water Supply.
Wisconsin	La Crosse	May 23, 2 p.m.	Furn. c. i. pipe, hydrants, valves, etc	Board Public Works.
Virginia	Ft. Meyer	May 25, 11 a.m.	Constr. about 2 miles of 10-in. water mains	Capt. Warren W. Whiteside, C. Q.M.
California	Los Angeles	May 26	Furn. fabricated steel and rivets necessary to con. abt. 1,865 ft. of 9-ft. 3-in. and 8,313 ft. of 11-ft. riveted steel syphon	Board of Public Works.
Ohio	Toledo	May 26, noon.	Furn. rotary pump, 15,000,000 gals. daily; also bituminous coal gas producer and accessories, about 400 h.p. continuous capacity	Fred Shane, Sec'y Bd. Pub. Service.
Ontario, Can.	Ottawa	May 29, 4 p.m.	Constr. a dam and spillway at Kipewa Village, Pon. Co., Quebec	R. C. Desrochers, Secy. D.P.W., Ott.
Brit. Col., Can.	Vancouver	May 31, 4 p.m.	Furn. steel pipe, . i. pipe; also 18-in. flexible joint c. i. pipe	Wm. McQueen, City Clerk.
Wyoming	Ft. Yellowstone	May 31, noon.	Constructing pipe line from Panther Creek to Ft. Yellowstone water system	Constructing Quartermaster.
Ontario, Can.	Toronto	June 6	Furnishing vertically driven pumps	C. H. Rust, City Engr.
BRIDGES				
New York	Richmondville	May 12, 1 p.m.	Construct. an iron, conc. arch, or stone bridge	G. C. Shafter, Town Clerk.
Massachusetts	Barnstable	May 13	Constr. a reinforced concrete bridge over West Bay, 289 ft. long 20 ft. wide, with steel draw span	F. C. Wales, Boston, Mass. Engr.
Ohio	Sidney	May 13, 10 a.m.	Constructing superstructure for one steel highway bridge, 75 ft. long, over Mosquito Creek	H. T. Ruese, County Auditor.
Wisconsin	Milwaukee	May 15	Constr. the Oneida-Wells St. Bridge, cost about $120,000	L. J. Klug, Supt. of Bridges.
Ohio	Delaware	May 15, noon.	Constr. east abutment of the Sunbury Pike bridge over Alum Creek in Berlin township	W. H. Bodbetha, County Auditor.
Pennsylvania	West Chester	May 15, noon.	Constr. a reinf. conc. bridge at Springdale station over Doe Crk	E. V. Phillips, Clk. Co. Comrs.
Ohio	Columbus	May 16, noon.	Constr. the approaches and superstructure of the Wilson Bridge over Olentangy river	F. M. Sayre, County Auditor.
Utah	Moab	May 20	Constructing a bridge over Grand river	A. A. Neff, County Clerk.
Pennsylvania	Washington	May 22, 1:30 p.m.	Constructing four reinforced concrete bridges	John H. Moffitt, Co. Comptroller.
Ohio	Lorain	May 22, 1 p.m.	Constr. substructure and superstructure of four bridges	Chas. Chandler, Clk. Co. Comrs.
Ohio	Cincinnati	May 29, noon.	Driving piling for the construction of substructure and miscellaneous work in connection with Gilbert ave. Viaduct	John J. Wenner, Clk. Bd. Pub. Serv.
Pennsylvania	Pittsburg	June 1	Widening Smithfield Street Bridge, cost about $150,000	City Clerk.
New York	New York	June 1	Strengthening the end spans of the Williamsburg Bridge	Kingsley L. Martin, Comr. of Br.
Pennsylvania	Pittsburg	July 1	Constructing one concrete arch, estimated cost $85,000	City Clerk.
LIGHTING AND POWER				
Manitoba, Can.	Winnipeg	May 15	Furn. and install. six 500 K.W. stepdown transformers for substation No. 1	M. Peterson, Secy. Bd. Control.
Missouri	Columbus	May 16	Constructing an electric lighting and power plant	John S. Bicknell, City Clerk.
California	Riverside	May 24	Franchise to run poles and line for conveying electric power on all roads of county.	County Supervisors.
FIRE EQUIPMENT				
Washington	Centralia	May 16, 5 p.m.	Furn. one combination chemical hose and ladder or chemical and hose, automobile	W. H. Hodge, City Clerk.
California	Oakland	May 17, 11 a.m.	Furn. 3 combination chemical hose wagons; 3 third size steam fire engines; 1 motor driven pumping engine; 3 motor-driven combination chemical and hose wagons, and fire hose	Jas. W. Nelson, Sec'y Bd. Pub. Wks.
Oregon	Astoria	May 27, 8 p.m.	Furn. 1,200 ft. 2½" fire hose for Fire Dept.; 200 ft. for Street Dept	C. E. Foster, Chief Fire Dept.
New Jersey	Princeton	July 5	Furn. auto pumping engine	E. M. Updike, Chm. F. & W. Com.
MISCELLANEOUS				
New York	Albany	May 15, 3 p.m.	Installing police signal system	Isidore Wachsman, Bd. Cont. & Sup.
New Jersey	Passaic	May 19, 8 p.m.	Install Police Signal, Fire Alarm and Mun. Tele. Exchange	M. B. Matthews, Chm. Com. Pub. S.
Ohio	Mount Gilead	May 19, 11 a.m.	Furn. iron culvert pipe from 8 to 48-in. diameter	Clinton Sipe, County Auditor.
California	Oakland	May 22, 10-11 a.m.	Constructing City Hall Building, separate bids on 27 items	James W. Nelson, Secy. Bd. Pub. W.
Ohio	Youngstown	May 23, 11 a.m.	Renewing part of the floor of the Market St. Viaduct	Will B. Jones, County Auditor.
Ontario, Can.	Toronto	May 23, noon.	Building dock in Ashbridge Bay	G. R. Geary, Mayor.
Indiana	Indianapolis	May 25	Removing garbage	Chris. Schrader, Chm. Bd. Pub. Wks.
Indiana	Evansville	June 1	Furnishing plans for building to be erected in Sunset Park	Simon A. Bartholme, Clk. B. P. C.

STREET IMPROVEMENTS

Fort Smith, Ark.—Council is considering paving of Garrison ave.; creosote block paving is favored.

Fullerton, Cal.—Consulting Engineer D. S. Halladay, Central Bldg., Los Angeles, has prepared plans for 13 miles of oil macadam roadway; cost $178,000.

Oakland, Cal.—Plans have been prepared by City Engineer Turner for improvement of 7th st. from Bay st. to Fallon, the work to be done simultaneously with the improvement of the 7th st line of Southern Pacific Co.

Oakland, Cal.—Council has adopted plans and resolutions of intentions for improving portions of eight streets.

Kissimmee, Fla.—City desires street paving material. Address C. W. Dann, Box 717, Chairman.

Danville, Ill.—Bids will be received until about May 15 by Board Local Improvements for 7,000 sq. yds. vit. brick pavement on Oakwood ave.—W. E. Wynn, City Engineer.

Peoria, Ill.—Board of Local Improvements is considering construction of cement sidewalks at cost of $11,000.

Quincy, Ill.—Mayor John F. Gardner has recommended resurfacing streets.

Fort Wayne, Ind.—Board of Public Works has ordered plans for paving Clinton, Leith and Hoagland sts.

Marion, Ind.—County Commissioners are considering construction of gravel road in Fairmount Township.—Fremont Wilson, Engineer.

Princeton, Ind.—Council has instructed the City Engineer to make plans for widening four streets of the public square about 11 ft.

Lawrence, Kan.—Council has adopted ordinance for paving Lee st.

Lexington, Ky.—All bids for the construction of macadam streets on Clay, Ashland, Bryan, Kentucky and Oldham aves. from High to Euclid; Lexington ave., from Maxwell to Adams; Woodland ave., Euclid to Columbia, and Columbia ave., Rose st. to Woodland ave., have been rejected and the Mayor instructed to advertise again for bids; chairman of the Board of Public Works will advertise for bids for 7,000 tons of cracked rock and for 1,000 tons screenings, also bids for furnishing and spreading 100,000 to 175,000 gals. of oil for spreading on streets of city.

Baltimore, Md.—Citizens have voted $5,000,000 loan for paving and $2,500,000 for paving in annex.

Detroit, Mich.—Contracts will soon be let for paving Iroquois ave., Waterloo st. and alley between John and Brush sts.; cost about $12,000.

Ludington, Mich.—Grant Township has voted $9,000 bonds to build gravel roads.

Duluth, Minn.—Specifications have been prepared for paving Grand ave. and bids will soon be asked.

Little Falls, Minn.—All bids opened April 24 for paving with creosoted wood blocks the Broadway wagon bridge over the Mississippi River have been rejected; new bids will be received.—Fred Cary, Clerk.

Bozeman, Mont.—Council has adopted specifications and will at once ask bids for cement work for city during coming year.

Columbia, Mo.—City Engineer J. Russell Ellis will prepare plans for 4,000 to 5,000 sq. yds. of brick pavement; also several thousand sq. ft. of concrete sidewalks.

Linneus, Mo.—Linn County has voted $16,000 bonds for road improvements.

Hastings, Neb.—Council has ordered paving of St. Joe ave. with brick and asphalt.

Elizabeth, N. J.—Council is considering paving of Monroe ave., Julia st. to North ave.

Englewood, N. J.—Council has decided to pave Dean and Eagle sts. and Palisade ave.

Haddonfield, N. J.—Needed street paving is estimated at 240,219 sq. yds. by Remington & Sartori, Borough Engineers.

Jersey City, N. J.—Board of Finance is considering $45,786.60 appropriation for repaving of Summit ave., Five Corners to Secaucus road, $51,666.80 for widening same thoroughfare and $7,195.25 for repaving Sherman pl.; Street and Water Board has approved specifications for improvement of St. Paul ave., Summit to Skillman ave.

Lakehurst, N. J.—State Road Commissioner Stevens has approved specifications for Brown's Mills and Lakehurst gravel road; work will be begun at early date.

Plainfield, N. J.—Borough Engineer H. C. Van Emburgh has estimated cost of widening Somerset st., Jackson ave. to Johnston's Drive, at $21,000.

Trenton, N. J.—Bids will be asked for macadamizing Behm st.—H. B. Salter, City Clerk.

Woodbridge, N. J.—Township Committee has received from Engineer Forest L. Smith plans for the macadamizing of Holton st. and Cliff road, Sewaren; Ridgedale and Prospect aves., Edgars, and Mutton Hollow road at High Hill.

Albany, N. Y.—Council is considering paving of portion of Mercer, Sherman and Providence sts.

Herkimer, N. Y.—Board of Trustees has adopted resolution favoring paving of South Washington st.

Little Falls, N. Y.—Council has ordered paving of South st., Albany and East Main sts.

Whitesboro, N. Y.—Town Board has apportioned highway money from State among various roads as follows: The Utica-Rome road, running west from Whitesboro corporation line through Oriskany to town line, $1,000; Madden road, running from Clark Mills to Whitesboro, $800; stone road to Oriskany, $300; the road running from the Utica-Rome road to Westmoreland line, $300.

Marble, N. C.—Bids will be received by the Highway Commission for $12,000 bonds.—J. M. Kilpatrick, Secretary.

Wilmington, N. C.—New Hanover County will vote May 31 on $50,000 of bonds for road and bridge improvements and construction.—D. McEachern, Chairman County Commissioners.

Akron, O.—Market st. from Canal st. to High st. is to be paved with stone block.

Baker City, Ore.—Paving of Washington st. is being considered.

Eugene, Ore.—Council has ordered mile of street paving.

Hillsboro, Ore.—City Council has informally accepted plans for street improvements and sewers submitted by City Engineer; estimated cost of the work is a little over $142,000.

St. Johns, Ore.—Council has adopted specification providing for the paving of Jersey ave. with westrumite at cost of $29,000.

West York, Pa.—Furnishing stone for borough streets, to Myers & Gise, 82½c. per perch of 2,500 lbs. for sizes 1, 2, 3, and 75c. per perch for spalls.

Germantown, Tenn.—Citizens will vote on $3,000 bond issue for street and sidewalk improvements, bridge construction, etc.

Farmersville, Tex.—Citizens have voted $10,000 bonds for permanent street improvements.

Tyler, Tex.—Smith County will vote on $10,000 road improvement bond issue.

Boydton, Va.—Mecklenburg County will vote June 17 on $50,000 bonds for road improvements in Lacrosse Magisterial District and $50,000 for road improvements in South Hill District.

Marion, Va.—Rich Valley District will issue $100,000 bonds for good roads.

Newport News, Va.—Council has adopted following appropriations for street improvements: Curb and gutter, 35th st., West and Washington aves., $225; curb and gutter 35th st., Washington ave. and Huntington ave., $400; curb and gutter and macadamize West ave., 25th st. to 35th st., $3,000; putting crushed stone on Warwick ave., 22d st. to 25th st., $1,200.

Newport News, Va.—Additional improvements to the city streets are provided for in recommendations made to Finance Committee by Council Committee on Highways and Sewers.

Petersburg, Va.—Council has decided to ask for bids for 10,000 sq. yds. of additional sidewalk paving.

Bellingham, Wash.—Bids will be asked for building concrete sidewalks on Grand st. at cost of $7,000.

Ellensburg, Wash.—Council has decided to pave with asphalt Pearl and 4th st. districts at cost of $64,271.

Raymond, Wash.—Pacific County Commissioners will ask bids for completion of State aid road between Frances and Walville; distance 5½ miles; $30,000 available.

Spokane, Wash.—Plans for 16 new street improvements, estimated to cost $217,771, have been completed by City Engineer Merton Macartney and submitted to Commissioners for approval by Commissioner of Public Works D. C. Coates.

Lumberport, W. Va.—Town is considering issuance of $10,000 bonds for street improvements.

CONTRACTS AWARDED

Los Angeles, Cal.—Improving Bonnie Brae st., First st. to Ocean View ave., to Barber Asphalt Paving Co., $12,786; improving 16 streets between Figueroa st., to Benjamin E. Ford, $11,142; Micheltoreno st., between Sunset blvd. and Effie st., to Walter Overell, $11,335; Sunset blvd., between Marion ave. and city line, to Chas. H. Mattern, $16,500; Flower st., from Temple to 3d st., to the Barber Asphalt Paving Co., $34,377; Crenshaw blvd., between Pico and Washington sts., to Fairchild, Gilmore, Wilton Co., $24,522; 16th st., between Figueroa st. and Pacific ave., to Barber Asphalt Paving Co., $53,479.

Washington, D. C.—To Cranford Paving Co., 2620 E. st. N. W., for asphalt resurfacing and repairing.

Jacksonville, Fla.—Resurfacing a portion of Lem Turner road, to the Engineering and Paving Co., city; bid submitted was as follows: Grading with teams, 21c. per cu. yd.; with shovel, 15c.; paving and curbing complete, $1.29 per sq. yd.; other bidders: Atlantic Bitulithic Co., paving $3.20 per cu. yd., with asphalt; grading, $45, 20c. per cu. yd.; resurfacing, No. 1, $1.08; No. 2, $1.15; No. 3, $1.35 per sq. yd.; J. C. Rock, Philadelphia, asphalt macadam, $3 per cu. yd.; grading, 17c. per cu. yd.; resurfacing, 99c. and $1.11 per sq. yd.; Alabama Paving Co., Birmingham, paving with brick, $1.24 per sq. yd.; grading, $27.15 per yd. and 18c. for vit. per lin. ft.; Continental Asphalt and Engineering Co., asphalt macadam, $2.25, flint rock, per cu. yd.; grading, $30.12 cu. yd.; resurfacing, $1.04, $1.15 and $1.33 per sq. yd.

East St. Louis, Ill.—Improving 38th st., to Meyer Construction Co., $16,473.50.

Harvard, Ill.—To A. E. Rutledge, Rockford, for paving with brick 12,560 sq. yds., $22,899.

Macomb, Ill.—Paving with brick Adams st., to P. H. Tiernan, $1.22 per sq. yd.

Emporia, Kan.—Paving 12th ave. and Rural st., to E. C. Bollweg & Co., $68,021.

Wichita, Kan.—Paving with wood block Washington st., to Jersey Paving Co., $2.74 per sq. yd. for using block of Barber Asphalt Paving Co., and $3.01 per sq. yd. for using United States Wood Preserving Co.'s block.

Maysville, Ky.—To H. H. Kapps, Portsmouth, O., for building 5,700 sq. yds. of brick streets, $1.89 per sq. yd.

Mt. Sterling, Ky.—Council recommended to Street Paving Commission to accept bid of the J. H. Spouh Co., of Dayton, O., to brick 12,000 sq. yds. of street in business section.

Louisville, Ky.—Construction of vit. block streets, to cost about $35,000, by the Board of Public Works: 28th st., Market to Jefferson, to L. R. Figg & Co., $1.78 per sq. yd.; 17th st., Payne to Oak, to G. W. Gosnell, $1.85 per sq. yd.; Payne st., to G. W. Gosnell, $1.80 per sq. yd.; Market st., 34th to city limits, to Jefferson County Construction Co., $1.85 per sq. yd.

New Orleans, La.—For subsurface, etc., on Hancock st., Burgundy to St. Claude, to C. Hyland, $4,526.20; other bidders: Standard Paving and Contracting Co., $4,841.80; Barber Asphalt Co., $5,087.90; paving Hancock st., in the same area, to Standard Paving and Construction Co., $6,456; subsurface drains, etc., on Dryades st., St. Andrew to Philip, to C. Hyland, $5,251.20; other bidder: Barber Asphalt Co., $5,369.50; paving Dryades, in the same area, to Barber Asphalt Co., $16,335.

Baltimore, Md.—Paving, to Martin J. Beach for vit. blocks on north side of O'Donnell st., $13,499; to Wm. Elder, 220 St. Paul st., for asphalt on Edmondson, Carrollton aves., Mulberry, Oliver, High, Aisquith sts., $46,106; with vit. blocks, Fulton ave., Hollins st., $24,750; with granite, Fremont, Barre, Lombard sts., $33,763.

Fall River, Mass.—Paving blocks for use of the highway department for the year as follows: No. 1 blocks, to George Ross, 30,000; to Henry Savoie, 100,000; to Cote & Desrosiers, 50,000; to Jerry H. McCarthy, 30,000; to Willard M. Pettey, 15,000. No. 2, to Flavien Cote, 30,000. No. 3, to Henry Savoie, 50,000.

Jackson, Mich.—To Kneal & Ryan, Lansing, for paving Horton and Mechanic sts., $21,000; Nelsonville block will be used.

Jackson, Miss.—By Hinds County Commissioners, to Worthing Construction Co., to construct 20 miles of roads.—Mayes Cooper, Engineer.

Moorestown, N. J.—Macadam roads on Central ave. and on N. Church road, to J. F. Stanley Co., Philadelphia, Pa., $7,587

Newark, N. J.—South 13th st., from Avon to Madison aves., with bitulithic, to Standard Bitulithic Co., $5,466; Ave. A, from Emmet to Poinier st., $12,561, and Branford st., from Elizabeth to Frelinghuysen ave., $8,050, to the Jersey Paving Co.; for grading, curbing and flagging Woodside ave., from Elwood to Delavan ave., at $3,591, to Philip and Peter Jannarone; for grading, curbing and flagging Mead st., from Silver to Ocean ave., $2,087, and Ave. C, from Emmet to Vanderpool st., to Maher McNicholas, $2,621.

Perth Amboy, N. J.—Paving with bitulithic Davidson ave. and Sheridan st., to Standard Bitulithic Co.; excavation, 86c. per cu. yd.; concrete, $5.50; new curbing, 74c. per lin. ft.; Warren bitulithic paving, $1.45 per sq. yd.

Trenton, N. J.—To McGovern Construction Co., lowest bidder, for paving following streets with filbertine: Charles, from Anderson to Division; Ferry, from water power to Fair; Prospect, from Rutherford to Reading Railroad; Mercer, from Montgomery to Market; Whittier, from Stuyvesant to Parkside; Genesee, from Dye to Cedar; Hoffman, from Stuyvesant to Reading Railroad; Allen, from Broad to Montgomery.

West New York, N. J.—Furnishing all material and labor required for grading and constructing streets and sidewalks upon the property of the West New York Improvement Co., to Joseph Murphy & Son, Inc., 308 Charles st., West Hoboken, $65,000.

Albany, N. Y.—Improving streets, to Goldsmith C. Stephens: West Lawrence st., Kent st. to Central ave., $11,947.69; West st., $7,593.30, and West Lawrence st., Western to Madison ave., $1,942.75.

Albany, N. Y.—County Highway No. 495, Monroe County, to Hucknall Contracting Co., Albion, $51,200; No. 497, Monroe County, to Monroe Roads Co., Pittsford, $16,000; No. 502, Monroe County, to Monroe Roads Co., $52,705; No. 538, Monroe County, to Julius Freiderich Co., Rochester, $77,900; No. 573, Monroe County, to A. J. Rockwood, Rochester, $62,190.18; No. 394, Orleans County, to Hucknall Construction Co., Albion, $24,300; No. 395, Orleans County, to Rhody Tyler, Albion, $45,000; No. 5118, Orleans County, to Hucknall Construction Co., $20,646.60; No. 5119, Part 3, Jefferson County, to Burns Bros. & Haley, Watertown, $30,978; No. 5120, Part 2, Madison County, J. H. Widman, Syracuse, $35,100; No. 5121, Chenango County, to Thomas F. Shaughnessy & Co., Albany, $65,400; No. 840, Oneida County, to Thomas F. Shaughnessy & Co., $56,400; No. 5122, Tompkins County, to Thomas F. Shaughnessy & Co., $36,400; No. 5123, Montgomery County, to Olin T. Benedict, Pittsfield, Mass., $41,000; No. 5124-5125 combined, Montgomery County, to James E. Martin, Poughkeepsie, $88,983; No. 5126, Montgomery County, Thomas Karr, Troy, $25,470; No. 5127, Wayne County, to Chambers & Truesdale, Rochester, $27,990.

Canajoharie, N. Y.—Paving Church st., to Acme Engineering and Construction Co., Schenectady, $14,800.

Long Island City, L. I., N. Y.—Repairing asphalt pavements from April 15 to Dec. 15, to Warren-Quinlan Asphalt Co., $13,245, and for grading, curbing and laying sidewalks on Radde st., to Astoria Contracting Co., $5,113.

Lockport, N. Y.—Building sandstone curb and gutter, two streets, to C. N. Stainthorpe & Co., $1,390.

Poughkeepsie, N. Y.—To C. W. Crockett, Torrington, Conn., for laying 44,000 sq. ft. of cement walk, 17c., and 1,900 lin. ft. of curb, 54c.; other bidders: John Martin, 17c. and 65c.; Concrete Construction and General Contracting Co., 16c. and 55c.

Rochester, N. Y.—Bloss st. asphalt pavement, to Rochester Vulcanite Pavement Co., $17,966; Gillette st. cement walks, to Wm. Baker, $897, and Burrows st., $335.75; Sylvester st., to John J. Regan, $1,326; Sherwood ave. asphalt pavement, to Rochester Vulcanite Co., $8,709.50.

Schenectady, N. Y.—General repairs to city streets, to Schenectady Contracting Co.; new concrete, 6 in. deep 64c. per sq. yd.; surface patching, $2.16 per sq. yd. for holes less than 100 sq. yds. and $1.80 for holes of 100 yds. or over; paving Chrisler ave., from Ostrander pl. to city line, to the Union Paving Co.; excavation, 45c. per yd.; asphalt, $2.20 per yd.; curbing, 82c. per ft.; water taps, $6.50; water and sewer connections, 55c. per ft.; catch basins, $95 each; 8-in. sewer pipe, laid, at 45c. per ft.; to Valley Stone Co. for crushed stone, $1.15 per ton for all sizes and 95c. per ton for screenings.

Windsor, N. Y.—Furnishing traction engine, to Monarch Co., Graton.

Yonkers, N. Y.—To Kearns & Hart for asphalt paving repairing, by Board of Contract and Supply, $2.51 per sq. yd. for class A, $1.61 per sq. yd. for class B, and $1.25 per sq. yd. for class C.

Bowling Green, O.—Constructing road two miles long between Henry and Wood counties, to Goetschins Stone Co., $11,214.

Cincinnati, O.—To Warren Bros. for completing paving of Clifton ave., approximate area of 5,000 sq. yds., $2.30 per sq. yd.

Oklahoma City, Okla.—Paving, to Western Paving Co., for Ave. D, Walton to Robinson, $12,656.25; to Cleveland Trinidad Co., Ohio ave., A to E; Walker, from D to G; Hudson, from 4 to 9; Agnew, from C to Central; A from Stiles to Robinson; Stiles, from A to E; C, from Blackwelder to Walker, $365,465.76.

Medford, Ore.—Paving 250,000 sq. yds., to Clark & Heney Construction Co., about $500,000.

McKeesport, Pa.—Improving 5th and 6th aves., to Bowman Bros. Co., $11,895.50 and $2,917.52.

Chattanooga, Tenn.—By Board of Public Works, for paving number of streets in Ninth Ward, to West Construction Co., $93,172.16.

Dallas, Tex.—Paving three streets, to F. O. Brown, $7,381.30; Oak lane, $4,836.30; 2d ave., $12,971.33; material will be of asphaltic macadam.

Petersburg, Va.—Laying 10,000 yds. concrete sidewalk pavements, to Coleman Construction Co., $1.04 per sq. yd.; paving roadway of West Table st. with Belgian block, to Perkinson & Finn, $2.97 per sq. yd.

Everett, Wash.—Improvement of Districts 243 and 245, to Atlas Construction Co., $26,415 and $9,990.

Brantford, Ont., Can.—Laying vit. block pavement with cement base between and on each side of car rails, to P. H. Secord & Sons, city, $2.24 per sq. yd.

Brandon, Man., Can.—To Ontario Asphalt Block Co. for 32,351 sq. yds. asphalt block, $109,669, excavation included; other bidders: Shepley & Fielding, $108,375 for 3-in. wood block; Bloome Co., $82,495 for granitoid and $95,435 for bitulithic; National Paving Co., sheet asphalt, $87,347; Boc Mac, $54,996.—R. E. Speakman, City Engineer.

Simcoe, Ont., Can.—Furnishing road roller, to Messrs. Cameron & Son, for 10-ton Waterous double-engine road roller, $2,750. —W. C. McCall, Town Clerk.

BIDS RECEIVED

Wilmington, Del.—Building road from Lower Brandywine Presbyterian Church to State line; road is less than three miles, but it is difficult to get the material for building; local stone with a binder, Stewart & Donohoe, $47,726.48; B. F. Wickersham, $44,375; J. Frank Stewart, $43,601.48; John F. O'Neill, $44,700.

Jacksonville, Fla.—Resurfacing a portion of the Atlantic blvd., extending from city limits of South Jacksonville, about one mile east; Atlantic Bitulithic Co., Richmond, Va., preparing foundation, consisting of rock in place; resurfacing, No. 1 mixing method, $1.08 per sq. yd.; No. 2, $1.15; No. 3, $1.35; grading by shovel, 20c. per cu. yd. and grading, 45c.; George R. Foster, Jacksonville, preparing foundation, consisting of rock in place, $3.90 per cu. yd.; resurfacing, Nos. 1 and 2, $1.17; No. 3, $1.29; Continental Asphalt and Equipment Co., Chicago, preparing foundation, consisting of rock in place, $2.35 per cu. yd.; resurfacing, No. 1, $1.04; No. 2, $1.15; No. 3, $1.33; Joseph C. Rock, Philadelphia grading by shovel 17c.; by team 34c.; preparing foundation consisting of rock in place, $3 per cu. yd., resurfacing, No. 1, 99c.; No. 2, $1.11; No. 3, $1.38; Logan Concrete and Engineering Co.; grading by shovel, 19c. per cu. yd.; by team, 28c.; preparing the foundation with rock in place, $4 per cu. yd.; resurfacing, Nos. 1 and 2, $1.17; No. 3, $1.24; Mattair & Young, Jacksonville, grading by shovel, 15c.; by team, 20c.; preparing foundation with rock in place, $3.33 cu. yd.; resurfacing, No. 1, $1.15; No. 2, $1.28; No. 3, $1.34; F. W. Long & Co., grading, 21 and 43c. per cu. yd.; preparing foundation, etc., $4.10; resurfacing, $1.24.

Jacksonville, Fla.—Resurfacing St. John's ave., from city limits to McGirt's Creek bridge, with asphalt macadam: George R. Foster, Jr., per cu. yd., $3.90; per sq. yd., No. 1, $1.12, and No. 2, $1.24; Atlantic Bitulithic Co., per sq. yd., $3.20; No. 1, sq. yd., $1.08; No. 2, $1.15, and No. 3, $1.35; F. W. Long & Co., per cu. yd., $3.95, and per sq. yd., No. 1, 94c., and No. 2, $1.04; Mattair & Young, per cu. yd., $3.78, and per sq. yd., No. 1, $1.31, and No. 2, $1.49; Logan Concrete and Engineering Co., per cu. yd., $3.31; per sq. yd., $1.09, and No. 2, $1.16; J. C. Rock, Philadelphia, Pa., per cu. yd., $4.12, per sq. yd., No. 1, $1.06, No. 2, $1.24, and No. 3, $1.45; Continenetal Asphalt and Equipment Co., Chicago, per cu. yd., $3.50, and per sq. yd., No. 1, $1.07; No. 2, $1.22, and No. 3, $1.47.

Bay City, Mich.—By Board of Public Works for sidewalk work for city for the ensuing year: Jas. Meagher, Second District, 8½c. per ft; I. G. Meagher, First District, 8½c.; Albert Boston, Third District, 8¾c.; Dateson Bros., First District, 10½c., Second 10c., Third 9¼c.; J. M. Fehrenbach, First District, 10c.; Fred Kehmus, First District 10c., Second 9½c., Third 9½c.; Wm. Green, Third District, 8¾c.; Theo. M. Gaffney, First District 9c., Second 9c., Third 9c.; P. Ryan, Jr., First District 8¾c., Second 9½c., Third 9½c.; Hugh Campbell & Son, First District, 9½c., Second 10c., Third, 9¼c.; John Dardas, First 9½c., Second 8¾c., Third 8¾c.; Frank Hoyt, First District 10½c., Second, 9½c.

New Brunswick, N. J.—Redressing surface of Livingston ave., city, between Comstock and George st., W. L. Konover, Trenton, amesite, 88c. per sq. yd.; K. S. Shanley & Co., Jersey City, trapite, $1.35 per sq. yd., with one year guarantee; $1.40 per sq. yd. for two year guarantee; Thomas F. Dunigan, Woodbridge, asphalt, $1.04 per sq. yd.; Standard Bitulithic Co., New York City, on their product, $1.45 per sq. yd.

Canajoharie, N. Y.—Paving Church st., J. E. Martin, Poughkeepsie, $16,987; Robert A. Probst, Canajoharie, $16,064; Acme Engineering & Construction Co., Schenectady, $15,556; A. M. Banker, Johnstown, $15,404.

Dunkirk, N. Y.—Paving, lowest bidders, (a) 6th st., (b) King st., (c) Lion st.: John McCormick & Son, Erie, Pa., on sheet asphalt with concrete curb and gutter, (a) $18,852, (b) $23,376; J. M. Doyle, Erie, Pa., same pavement with stone curb, (a) $18,648, (b) $23,344, (c) $12,701; it also bid lowest on sheet asphalt, concrete curb and gutter on (c) $13,046; Dunkirk Construction Co., Dunkirk, lowest on brick on concrete or brick on ballast, with concrete curb, (a) $18,487, (b) $23,067, (c) $12,311; James McNamara, Dunkirk, lowest on brick on concrete and brick on ballast, with stone curb, (a) $18,907, (b) $23,541, (c) $12,503.—John M. Hackett, City Engineer.

Hudson, N. Y.—Repaving Warren st. with vit. brick: Robert I. Gleason, Troy, for city portion, 10,514 sq. yds., from $2.35 to $2.47; railroad's share, 3,277 sq. yds., from $2.59 to $2.71; Wilsey & Rigney, Rensselaer, $2.29 to $2.39; John B. Dower, Ballston Spa, for city $2.35, for railroad $2.70; Crane & Veeder, Schenectady, for city $2.63, for railroad $2.86; Pietro Luciano, White Plains, for city $2.22, for railroad $2.55; Patrick W. Mulderry, Albany, for city $2.17 to $2.29, for railroad $2.49 to $2.60; Dennis Hester & Son, Hudson, for city $2.34 to $2.41, for railroad $2.92 to $3.20; Foley & Bannon, Kingston, for city $2.10 to $2.22, for railroad $2.51 to $2.61; Dollard & Heenan, Albany, for city $2.15 to $2.21, for railroad $2.26 to $2.32; Jersey Paving Corporation of Newark, for city $2.30, for railroad $2.75; price per lin. ft. for relaying curbing ranged from 15c. to 30c. per ft. for new curbing, 70c. to $1.10.

Long Island City, L. I., N. Y.—Regulating, grading, curbing, recurbing, reflagging and paving with asphalt block on concrete foundation in 2d ave., from Jackson ave. to Flushing ave., First Ward: (a) Barber Asphalt Co., 50 Church st., New York City, (b) Hastings Pavement Co., 25 Broad st., New York City: 2,000 cu. yds. earth excavation, (a) 99c., (b) 80c.; 2,600 lin. ft. old concrete curb reset, (a) 90c., (b) 35c.; 300 lin. ft. cement curb, (a) 95c., (b) $1.10; 4,000 sq. ft. old flag relaid, (a) 14c., (b) 8c.; 6,650 cu. yds. concrete, (a) $1, (b) $5.80; 39,800 sq. yds. asphalt block pavement, outside railroad area, (a) $1.75, (b) $1.75; 8,920 sq. yds. asphalt block pavement, within railroad area, (a) $1.75, (b) $1.75; 1,500 cu. yds. concrete, within railroad area, $6, (b) $5.80; totals, (a) $139,325, (b) $135,690.

New York, N. Y.—Paving as follows: Repaving with wood block on concrete foundation southern blvd., E. 133d st., from 3d ave. to Alexander ave., U. S. Wood Preserving Co., lowest bidder, 4,200 sq. yds. completed wood block pavement and keeping same in repair for 5 years from date of acceptance, $2.52; 1,820 sq. yds. completed wood block pavement, not to be kept in repair, $2.52; 855 cu. yds. concrete, including mortar bed, $5.10, and 1,810 lin. ft. new granite curb, furnished and set in concrete, $1.23; total, $21,757; total of other bids: Republic Construction Co., $23,308; Mack Bros., $22,924; Barber Asphalt Paving Co., $22.775. Regulating, grading and paving with asphalt blocks on concrete foundation, E. 192d st., from Creston ave. to Kingsbridge road, set curb, etc., lowest bidder, Hastings Pavement Co., 1,375 cu. yds. earth excavation, 75c.; 550 cu. yds. rock excavation, $2.75; 850 lin. ft. new curb, furnished and set in concrete, $1; 105 lin. ft. old curbstone, reset in concrete, 35c.; 2,750 sq. ft. new flag, 28c.; 1,545 sq. yds. completed asphalt block pavement and keeping same in repair for 5 years, $1.71; 225 cu. yds. concrete, including mortar bed, $5.92; total, $8,352; Barber Asphalt Co. bid for this work $8,547. Paving with sheet asphalt and with asphalt block on concrete foundation, E. 179th st., from 3d ave. to Bronx st., and set curb, etc., lowest bidder, Barber Asphalt Pavement Co., 6,620 sq. yds. completed asphalt block pavement, and keeping the same in repair for 5 years from date of acceptance, $1.65; 9,270 sq. yds. completed sheet asphalt pavement, and keep the same in repair for 5 years from date of acceptance, $1.14; 2,705 cu. yds. concrete, including mortar bed, where required, $5.50; 1,500 lin. ft. new curb, furnished and set in concrete, 81c.; 7,900 lin. ft. old curb, rejoined, recut on top and reset in concrete, 33c.; total, $40,190; the Hastings Pavement Co. bid for this work, $44,163. Paving with granite block pavement on sand foundation, Canal pl., from E. 138th st. to E. 144th st., and setting curb, lowest bidder, Burnside Construction Co., 5,770 sq. yds. new granite block pavement on a sand foundation, laid with sand joints, and keeping same in repair for one year from date of acceptance, $2.46; 500 lin. ft. new curb, furnished and set, 75c.; 2,580 lin. ft. old curb, reset, 25c.; 100 sq. ft. new bridgestone for crosswalks, furnished and laid, 65c.; 785 sq. ft. old bridgestone, rejoined and relaid, 8c.; total, $15,342. Regulating, grading, setting curos, etc., in Baychester ave., between Boston road and Pelham Bay Park, lowest bidder, W. J. Rodgers, as follows: 7,800 cu. yds. earth excavation, 30c.; 1,500 cu. yds. rock excavation, $1.30; 205,000 cu. yds. fill., exclusive of material sinking below surface of marsh, 34c.; 16,000 lin. ft. new curb, 70c.; 61,200 sq. ft. new flag., furnished and laid, 23c.; 9,650 sq. ft. new bridgestone for crosswalks, 45c.; 1,900 cu. yds. dry rubble masonry, in retaining wals, culverts and gutters, $1.75; 75 cu. yds. of rubble masonry, in mortar, $3; 390 cu. yds. of Class "A" concrete, $7; 250 lin. ft. vit. stoneware pipe, 12-in., $2; 1,250 lin. ft. vit. stoneware pipe, 15-in., $3; 230 lin. ft. vit. stoneware pipe, 18-in., $4; 26 M. ft. lumber, furnished and laid, $20; 10,200 lin. ft. new guard rail, 20c.; 8,100 lin. ft. of piles, 30c.; 26,000 lbs. of steel bars for reinforcing concrete, 3c.; 10 inlets, type "A," complete, $50, and 6 inlets, type "B," complete, $45; total, $121,598. Regulating, grading, setting, curb, etc., on other streets in Bronx, lowest bidders as follows: Westchester ave., from Main st. to Eastern blvd., Watson Contracting Co., $61,578; White Plains ave., Morris Park ave. and Walker st., J. B. Malatesta, $19,174; Findlay ave., from E. 164th st. to 165th st., W. McPherson, $5,091, and Van Cortlandt ave., from Mosholu Parkway south to Jerome ave., J. Di Menna, $4,739.

Dayton, O.—Grading and graveling 12 streets, low bidders were as follows: J. I. Geiger, for grading and graveling and setting curb on Gaines st., Dakota to Kammer ave., $1,559; J. I. Geiger and Cliff Hoolihan, North Bend st., Casper to alley east of Hall st., $522; Smith st., Cincinnati to western terminus, $1,723.60; Greencastle st., Germantown st. to southern terminus, $1,960; David A. Onkst, Benjamin st., from Wheatley st. to Darr ave., $3,252.25; Santa Clara ave., Richmond ave. to Wheatley st. $3,757.40; John F. Cooke, Findlay, from the C., H. & D. Railroad to canal feeder, $5,378.75; Bayard st., from Perry to Longworth, $1,033.50; Kirchner & Co., Beth ave., Huston st. to Hydraulic race, $1,694.50; bid received for grading and graveling of Highland ave., from St. Charles to Wyoming st., was above the Engineer's estimate; no bid was receved for grading and graveling Calm st., between Homestead ave. and Pontiac st.; two latter jobs will be readvertised.

Butler, Pa.—Street improvements: Mercer st., from end of present paving to intersection of Maryland ave., N. J. Boyer, excavaing, 30c.; Butler Brick and Tile Co. brick, $1.12; F. E. McQuistion, excavating, 30c.; paving, $1.12 to $1.42; Tony Morelli, excavating, 45c.; paving, $1.32 to $1.45; East Penn st., Monroe to Oak, F. E. McQuistion, excavating, 40c.; paving, $1.29 to $1.54; N. J. Boyer, excavating, 30c.; paving, $1.09 to $1.34; Tony Morelli, excavating, 25c.; paving, $1.07 to $1.30; Mitchell ave., from Clay to Penn, F. E. McQuistion, excavating, 40c.; paving, $1.24 to $1.45; N. J. Boyer, excavating, 30c.; paving, $1.10 to $1.31; Tony Morelli, excavating, 25c.; paving, $1.07 to $1.30; Miller st., from Clay to Penn, F. E. McQuistion, excavating, 40c.; paving, $1.24 to $1.45; N. J. Boyer, excavating, 30c.; paving, $1.10 to $1.31; Tony Morelli, excavating, 25c.; paving, $1.07 to $1.30.

Galveston, Tex.—Roadway from western city limits at Broadway to the causeway: H. Freund, shell for paving, 13,400 cu. yds., $1.64 per cu. yd.; soil for surfacing, 9,000 cu. yds., $1.52 per cu. yd.; creosoted lumber for bulkheading, 60,000 ft., $58.50 per M; all in place; on the same work and material Honson Sons bid $1.64½ on shell, $1.54½ for surfacing, $59.50 for lumber. J. C. Kelso bid $1.69 for shell, $1.44 for surfacing, $30 per M ft. for the lumber; Suderman & Dolson bid $1.64 for shell, $1.49 for surfacing and $60 for lumber; Freund agrees to do the work in five months, Hanson Sons by Oct. 1, Kelso by Sept. 30 and Suderman & Dolson by Dec. 1.

SEWERAGE

Oakland, Cal.—Council has adopted recommendation of Drainage and Sanitary Committee that City Engineer be directed to prepare plans and specifications for sewering of 30th st., between Union and Peralta sts.

Riverside, Cal.—Cost of constructing Arlington trunk line sewer to the disposal works has been estimated at $30,000.

San Francisco, Cal.—Board of City Supervisors has adopted ordinances for construction of sewers in Section L of North Point main sewer, cost not to exceed $55,000.

San José, Cal.—Citizens will vote in June on $100,000 bonds for sewers.

Marietta, Ga.—Citizens have voted $15,000 bonds to complete sewer and water system.

Mountain Home, Ida.—Bids will soon be asked for installation of sewer system; bonds have been sold.

Aurora, Ill.—Bids will be received in about 40 days for construction of 9-in. to 30-in. pipe sewer and 42-in. to 48-in. concrete sewer; approximate cost, about $120,000.—M. J. Tarble, City Engineer.

Park Ridge, Ill.—City will construct 7,000 ft. of 6-ft. concrete sewer; C. N. Roberts, C. E., 105 Clark st., Chicago, is preparing plans.

Fort Wayne, Ind.—The Metcalf & Eddy Engineering Co., Boston, has been retained to prepare plan for changing of city sewage system to admit of parking of river banks.

Rockport, Ind.—Council is considering plans and specifications for sewerage system for this city.

Valley Junction, Ia.—Bids will soon be received for construction of a sanitary sewer system and disposal plant; approximate cost about $45,000.—Iowa Engineering Co., Clinton, Ia., Engineer; J. W. Mullane, City Clerk.

Lexington, Ky.—Improvement Committee has decided to construct sewers on West and East Short and Walnut sts.

Baltimore, Md.—Citizens have voted $10,000,000 additional loan for sewers.

Princess Anne, Md.—Bids have been asked for construction of sewer system.

Cadillac, Mich.—City will install pumping apparatus to elevate sewage from lower sections of city to disposal plant.

Cold Spring, Minn.—City Engineer S. S. Chute, St. Cloud, is preparing plans for sewer system.

Paris, Mo.—Citizens have voted $15,000 bonds for installation of sewerage system.

Elizabeth, N. J.—Council is considering construction of sewers in Mack and Pennington sts.

Trenton, N. J.—Council has passed ordinances for sewers in six streets.—H. B. Salter, City Clerk.

Canastota, N. Y.—Village Board is considering installation of 8-in. sewer.

Herkimer, N. Y.—Plans have been prepared for extension of sewerage system.

Port Chester, N. Y.—Village proposes to install sewage disposal plant, to cost $100,000.—F. S. Odell, Engineer; Wm. C. Ling Village Clerk.

Yorkville, N. Y.—Board of Trustees has purchased site for proposed sewage disposal plant.

Clayton, N. C.—Plans are being prepared by Gilbert C. White, Durham, for sewerage and water works.

Thomasville, N. C.—Town has decided to issue bonds for sewerage and water works.

Springfield, O.—City Engineer H. G. Horton has been instructed to prepare plans and specifications and estimates of cost of construction of Sewer District No. 25, Section No. 2.

Wadsworth, O.—Council has ordered City Engineer to ascertain cost of necessary enlargement of disposal plant.

Tulsa, Okla.—Citizens will soon vote on $200,000 bonds for sewer extensions and construction.

Eugene, Ore.—Citizens will receive bids June 5 on $28,000 sewer bonds.

Hillsboro, Ore.—Council has informally accepted plans by the City Engineer for proposed sewer and street work to cost about $142,000.

Weatherly, Pa.—Plans have been prepared by Surveyor Moose and presented to Council for installation of sewer system at cost of $13,000.

Burlington, Vt.—Street Commissioners will prepare plans for proposed sewer in Park ave.

Seattle, Wash.—All bids have been rejected for constructing Interbay District North trunk sewer for 138-in. circular concrete sewer, Grant Smith & Co., city, lowest bidder, at $1,064,845, and for 138-in. concrete rectangular sewer, Erickson Construction Co., $1,098,515; work includes 760 lin. ft. 12 or 15-in. pipe sewer, 153 lin. ft. 36-in. brick sewer, 186 lin. ft. 48-in. concrete sewer, 920 lin. ft. 48-in. c.-i. sewer, including outlet; 151 lin. ft. 108-in. concrete sewer, 4,490 lin. ft. 138-in. concrete sewer, 1,700 lin. ft. 138-in. concrete sewer, special circular, or rectangular, 12,035 lin. ft. 144-in. concrete sewer, 30 manholes, 180 lin. ft. manholes, extra depth; 500 6-in. side connections, 24,000 lin. ft. piling, 1,000 cu. yds. extra concrete, 1:8; 50,000 lbs. extra steel, 15,000 lin. ft. subdrains, 8-in., 10-in., 12-in., etc.

Port Washington, Wis.—Bids will be received June 6 for $35,000 bonds for sewer system.—W. B. Krause, City Clerk.

Kasmack, Sask., Can.—Installation of sewerage and water system is being considered.

Melville, Sask., Can.—Ratepayers have passed $5,000 by-law for storm water sewers.

CONTRACTS AWARDED

San Francisco, Cal.—Constructing sewers in Mission st. and Mt. Vernon ave., to C. J. Harney, 158 Sanchez st., $61,206.

Pensacola, Fla.—Construction of storm water and sanitary sewers, to J. W. Gurley & Co., of Mobile, Ala., by the Board of Bond Trustees at cost of $77,232.90.

Westfield, Mass.—Furnishing sewer pipe for year, to Warner-Miller Co., New York.

Cloquet, Minn.—Building sewers and water main extensions, to Pastoret & Lawrence Co., Duluth, $23,398.

Winona, Minn.—To Otis Abell for a storm water sewer on Johnson, Belleville and Mill sts., $5,750.

St. Louis, Mo.—Constructing sewers in Washington Heights, to P. J. Clifford Contracting Co., $31,397.

Rochester, N. Y.—Building Division 3 of storage disposal system, to Ripton & Murphy, $169,834; contract involves nearly one mile of tunnel work in addition to trenching.

Utica, N. Y.—Building sewers: Sunset ave., to N. D. Peters, $972; Canal st., to A. W. Fitch, $1,943.45, and Linden st., to same, $357.95.

Springfield, O.—To Huonker & Williams to lay Elmwood sewer and construct the Mill Run arch in Washington st.; company bid $13,893 for Elmwood sewer, which specifies 8 and 12-in. vit. pipe, and 24 and 30-in. reinforced pipe; second bid was $14,065, by M. J. Cooney; Mr. Cooney bid on 8, 12 and 24-in. vit. pipe and 30-in. reinforced pipe.

Central Point, Ore.—To Jacobson-Bade Co. for construction of sewer system, $64,496.25; work includes 16,263 ft. of 8-in. pipe, 3,415 ft. of 10-in. pipe, 1,985 ft. of 12-in. pipe, 3,372 ft. of 16-in. pipe, 1,670 ft. of 20-in. pipe, 1,576 ft. of 22-in. pipe, 2,978 ft. of 24-in. pipe, 1,388 ft. of 30-in. pipe, 101 manholes, 8 inlets and 25,725 cu. yds. of excavation; other bidders: Jeffrey & Bufton, $64,793.99; Haydon Bros., $65,736.16; Geo. Gordon, $66,489.95; Northwest Municipal Constructing Co., $74,846.54; Jahn Contracting Co., $77,650.66; M. A. Jones, $76,953.65; Vincent & Boper, $65,984.86.—J. W. Jacobs, City Recorder.

Rock Hill, S. C.—Building sewerage system, to Sullivan, Long & Hagerty, Bessemer, Ala., $52,654.10; other bidders: John J. Cain, Columbia, $53,586.50; Robertson Construction Co., Charlotte, N. C., $53,633.15; P. J. Curran, Knoxville, Tenn., $54,326; Isaac C. Mishler, Chattanooga, Tenn., $54,549.40; Johnson & Matthews, Florence, $56,535.25; Guild & Co., Chattanooga, Tenn., $57,211.25; Meek Construction Co., Atlanta, Ga., $56,779.30; Greenwood Hardware Co., Greenwood, $57,458; McCostin Construction Co., Birmingham, Ala., $57,541.65; H. S. Basler, Chattanooga, Tenn., $59,668.50.

Richmond, Va.—To I. J. Smith & Co. for deep sewer on Broad st.

WATER SUPPLY

Columbiana, Ala.—Citizens will vote May 15 on $7,000 bonds for construction of water works.

Imboden, Ark.—George Dutton has purchased from People's Bank water works and electric light systems and contemplates extension and improvement.

Oxnard, Cal.—Estimates will be prepared on cost of constructing water works and for paving of all streets.

Colorado Springs, Col.—Citizens have voted $175,000 bonds to extend water system.

Olathe, Col.—Bids will soon be asked for installation of a municipal water system; estimated cost, $58,000.—George H. Sethman, Denver, Engineer; Mattie A. Burns, Town Clerk.

Marietta, Ga.—Citizens have voted $15,000 bonds for completing water and sewer system.

Thomaston, Ga.—Citizens have voted $50,000 water works and sewerage bonds.

Clinton, Ind.—Council is considering building and equipping new water works plant.—William Hamilton, President Water Works Board.

Burden, Kan.—Rollins & Westover, Kansas City, Mo., are preparing plans for water works to cost $15,000.—L. G. Crawford, City Clerk.

Cherryvale, Kan.—J. S. Worley, Kansas City, Mo., is preparing plans for water works.—E. E. Bellamy, City Clerk.

Homer, La.—Water Works Superintendent is now engaged at surveying town preparatory to laying pipes and mains for system of water works.

Baltimore, Md.—Grand Jury, D. M. Wylie, Foreman, has recommended erection of modern filtration plant.

La Plata, Md.—Town has voted $15,000 bonds to establish water system.—P. E. Sasscer, Town Commissioner.

Boston, Mass.—Metropolitan Water and Sewerage Board will soon lay approximately 15,000 ft. of 24-in. water pipe in order to supply Hyde Park, which has voted to join the Metropolitan Water District.—Henry H. Sprague, Chairman.

Shelburne Falls, Mass.—District has voted $75,000 for installation of gravity water system; authority will be asked to take Fox and Houghton brooks as source of supply.

Detroit, Mich.—Council has authorized issuance of bonds by Water Commission for the following improvements: Completing the new 48-in. high pressure force main in Forest and Bewick aves., $302,000; 48-in. force main through central part of city in Charlevoix, Berlin, Erskine and Alexandrine aves., $1,152,000; completing 48-in. main in High, Baker and Dix aves., $536,000; 42-in. main in Jefferson ave. West, from Solvay to Home sts., $81,000; 48-in. main in Michigan ave., from Vinewood to Livernois, $172,000; 24-in. main in Holbrook ave., $35,000; 24-in. main in Carbon, Forman and Fort sts., $68,000; 24-in. main in Hazelwood and Holcomb aves., from Russell to 3d st., $48,000; 42-in. main in Canfield and Bethune aves., from Helen ave. to North Grand blvd., $28,000; improvements at pumping station, $1,631,769.—J. J. Haarer, Commissioner of Public Works.

Courtland, Minn.—Village Council is considering installation of water works, including well, large tanks and 1,000 ft. of mains.

St. Charles, Mo.—Citizens have voted $30,000 bonds for improvement of water works by laying 4,000 ft. of additional 12-in. water main and constructing two concrete reservoirs, capacity 1,000,000 gals. each.—Carr Edwards, City Engineer.

St. Charles, Mo.—Mayor John N. Olson has recommended improvements to city water system.

Cascade, Mont.—Installation of water works system is being considered.

Anselmo, Neb.—Citizens will vote on installation of water works and electric lights.

West Orange, N. J.—Town Council is considering $15,000 bond issue for extension of water system and purchase of auto fire apparatus.

Tucumcari, N. M.—Citizens have voted for municipal ownership of water works; $10,000 will be spent at once on extending three miles of mains into suburban district, erecting standpipe and installing about 65 fire plugs.

Fredonia, N. Y.—Board of Village Trustees has called election on May 15 on improving present water works system of the village; plans have been prepared by Engineer Wilder for system of improvements which it is claimed will insure clear water; in addition the plans call for enlargement of the present reservoir to capacity of 180,000,000 gals.; estimate of cost of installing improvements is $16,400.

Clayton, N. C.—Gilbert C. White, Durham, is preparing plans for water works and sewerage.

Manden, N. D.—Citizens have voted $80,000 bonds for construction of water works.—Burns & McDonnell, Kansas City, Mo., Engineers.

New Berlin, O.—Citizens have voted $15,000 bonds for water works and $20,000 for sewers.

South Charleston, O.—Village has defeated proposition to issue $22,000 bonds for installation of water works.

Vian, Okla.—Citizens have voted $20,000 water works bonds.

Weleetka, Okla.—Citizens have voted $45,000 bonds for water works and electric light plant.

Blaine, Pa.—Citizens have defeated proposition to expend $7,000 in enlarging water supply.

North Wales, Pa.—Establishment of filtration plant is being considered and committee is inspecting plant. Messrs. Morris, Krieble and Baston are interested.

Bradley, S. D.—Citizens have voted $4,000 bonds for erection of pumping house and $10,000 for extension of mains.

Nashville, Tenn.—Nearly eight miles of new water mains will be placed this year by the City Water Works Department, according to plans now mapped out.

Kasmack, Sask., Can.—Installation of water and sewerage system is being considered.

Melville, Sask., Can.—Ratepayers have passed $63,000 by-law for water works.

Ridgetown, Ont., Can.—F. W. Farncombe, London, has prepared plans for proposed water works system; supply from artesian wells; $35,000 voted.

Welland, Ont., Can.—Ratepayers have carried by-law providing for $75,000 for extensions and additions to the water works. —G. H. Burgar, Clerk.

CONTRACTS AWARDED

Anaheim, Cal.—By Anaheim Water Co., to Charles Schendler, city, for constructing 6,000 ft. of reinforced concrete pipe for the company's system.

Escondido, Cal.—By the Escondido Water Co., to A. S. Bent, Central Bldg., Los Angeles, for constructing 2,400 ft. of 8-in. cement pipe; to A. G. Thornton, Colton, for 4,000 ft. of 12-in. cement pipe.

San Francisco, Cal.—Constructing reinforced concrete viaduct on Mission st., to Healy-Tibbitts Co., $104,200; other bidders were: Rickon Ehrlhardt, $113,950; Contra Costa Contracting Co., $112,000; American Contracting Co., $116,670.

Alamosa, Col.—To Marshall Bros., Las Animas, for building water works, $74,000.

Bridgeport, Conn.—Furnishing 25 4-in. Fairbanks hydrants, to Hunter & Havens, and 25 5-in. hydrants, 50 hydrants and 50 boxes and caps, to R. D. Wood & Co.

Norwich, Conn.—Building Section 1 of pipe line, to Archibald Torrance, and Section 2, to Thos. Dodd.

Washington, D. C.—Furnishing 90 tons c.-i. water pipe and specials, to the Standard Cast Iron Pipe and Foundry Co., Bristol, Pa., $51.50 per gross ton, and 2,411 tons c.-i. water pipe, to the Cast Iron Pipe and Foundry Co., New York, N. Y., $22.84 per gross ton.

Sparta, Ga.—To Walton & Wagner, Atlanta, for construction of 3½ miles of from 4-in. to 8-in. water mains, two 750,000-gal. pumps, air compressor, boiler, power house, 100,000-gal. brick reservoir, 80,000-gal. tank on a steel tower, and for construction of 3 miles of sewers and purification plant.

Chicago, Ill.—By L. E. McGann, Commissioner of Public Works, to Gindele Bros., Chicago Opera House Block, for materials, labor, etc., necessary for pumping out sections 1 and 2 Southwest Land tunnel, constructing one 11-ft. shaft in earth and rock and constructing 250 lin. ft. of 9-ft. tunnel in rock and other work, $47,700.

Owensboro, Ky.—To R. P. Farnsworth and L. M. Booth for construction of the proposed water softening plant; cost about $25,000.

Alexandria, Minn.—Construction of water main on 6th st., to Wm. B. Bosworth, Ada, about $2,100.

Chokio, Minn.—Water works system, Oscar Claussen Engineering Co., Nat. German-American Bank Bldg., St. Paul, Engineer; alternative bids on (a) air compressor system, consisting of 3,300-gal. reinforced concrete reservoir, about 5,600 ft. of 6-in. and 4-in. c.-i. pipe; pumping plant and accessories, including 15-hp. gasoline engine; 8-ft.x36-ft. compression tank, air compressor and air lift; 25-ft.x40-ft. power house; (b) gravity system consisting of 40,000-gal. steel tower and tank, about 5,600 ft. of 6-in. and 4-in. c.-i. pipe; 5-hp. gasoline engine, a deep well, pumping head and 14-ft.x16-ft. pump house; to J. G. Robertson, St. Paul, (a) $8,776, (b) $9,159; other bidders: Cook Construction Co., Des Moines, Ia., (a) $9,460, (b) $9,993; C. W. Roland Co., Des Moines, Ia., (a) $9,560, (b) $9,560; Gilbert W. Haggart, Fargo, N. D., (a) $10,500; (b) $10,600; Des Moines Bridge and Iron Co., Des Moines, Ia., (a) $9,690, (b) $8,895; Blackhawk Construction Co., Waterloo, Ia., pipe line $4,541, steel tower and tank $4,896; Minneapolis Steel and Machinery Co., Minneapolis, steel tower and tank, $3,500; Magnee Johnston, Minneapolis, pipe line, $5,611; Chicago Bridge and Iron Co., Chicago, Ill., steel tower and tank, $4,025.

Cloquet, Minn.—Building water main and sewer extensions, to Pastoret & Lawrence Co., Duluth, $23,398.

Minneapolis, Minn.—Furnishing special castings for the filtration plant, to James B. Clow & Sons, 350 Franklin st., Chicago, Ill., $117 per ton, total amount $3,805; to Rensselaer Valve Co. at $1,822 for furnishing valves, and to Venturi Meter Co. for one 60-in. and one 6-in meter.

Moberly, Mo.—Reconstruction of the water works plant; General contract to Commercial Construction Co., Kansas City, Mo., $23,323, and $1 per cu. yd. for extra concrete, and 40c. per cu. yd. for extra earth excavation; power house to G. A. Sinclair, city, $9,191.

Kearney, Neb.—Supplying city with meter tops and cement boxes; tops to Kearney Iron Co. and boxes to W. T. Scott.

Wells, Nev.—To P. J. Moran, Salt Lake City, Utah, for building an 80-ft. dam in Bishop Creek District, about $100,000.

Skillman, N. J.—To Harrison Construction Co., Newark, for extension of the water system at New Jersey State Village for Epileptics, $9,883.

Albany, N. Y.—To Eddy Valve Co., Waterford, for supplying hydrants for Water Department, $2,462.50.

Cleveland, O.—Furnishing 25,000,000-gal. pumps, to Holly Mfg. Co., Roberts ave., Buffalo, $112,769 each; for 3 to 24-in. c.-i. pipe, to the U. S. Cast Iron Pipe and Foundry Co., Cleveland, $24.35 per ton; for 3 to 16-in. specials, to same, at $53 per ton; for 20 to 24-in. specials, to Bowker Foundry Co., $58.75 per ton; for miscellaneous castings, to same, at $48.75 per ton; for 4 to 6-in. hydrants, to Florence Iron Works, $24.75 and $40.75, respectively; for valves, to Fairbanks Co., at the following prices: 24-in., $163; 20-in., $105; 16-in., $53; 12-in., $26.85; 10-in., $21; 8-in., $14.75; 6-in., $9.45; 4-in., $5.80; 3-in., $4.20.

Toledo, O.—To Watters & Tansey, Toledo, to lay high pressure main water system, to give better fire protection to the district extending from Washington to Cherry st. and from the river to Michigan st., $117,578.25; other bidders were Breymann & O'Neill, city, $118,887.80, and M. O'Hearn Co,. Pittsburg, $117,937.40; Engineer's estimate was $121,000; work is to be completed within five months; pumping station will cost probably $75,000 additionally.

Pittsburg, Pa.—By Department of Public Works, to William Kerr's Sons, Lewis Bldg., city, for constructing Mission st. pumping station, $93,200.

Somerset, Pa.—Construction of concrete reservoir, borough to furnish all iron work, to W. G. Ferner, city, $4,191.

St. Catherines, Ont., Can.—To National Iron Works, Toronto, Ont., for supply of 3,763 tons of standard piping, $30.50 per ton, and 55 tons of special castings, $59.

Winnipeg, Man., Can.—Wooden stave conduit for extension of water pipe line, to J. W. Astley, Engineer of Construction, $7.40 per lin. ft., $31,080.—M. Peterson, Secretary Board of Control.

LIGHTING AND POWER

Imboden, Ark.—George Dutton has purchased from People's Bank electric light and water works system and contemplates extension and remodeling.

Bakersfield, Cal.—Western Water Co. has been organized, capital $200,000, to construct two large pumping plants, one to be equipped with two 200-hp. gasoline engines and two pumps of 25,000-bbl. capacity; the other plant to have one unit of same capacity; plants will supply water to west side oil fields.

Merced, Cal.—Merced River Land Co., Los Angeles, has purchased site and will in the near future install electric pumping plant. —W. O. Huse, Manager.

Patton, Cal.—State Engineer Nathaniel Ellery, Sacramento, has prepared plans for gas and electric plant to be installed at State Hospital; $55,000 is available for this work.

San Francisco, Cal.—Great Western Power Co. will expend $1,000,000 in improvements at its generating station at Las Plumas on the Feather River.

Jacksonville, Fla.—Electrical Committee of Bond Trustees has rejected all bids for the erection of foundations, superstructure and pier bulkheads of the municipal electric light power station; bids are as follows: Building superstructure, which includes brick work, roofing, mill work, plumbing, heating, etc., F. W. Long & Co., Jacksonville, $45,325; Logan Concrete and Engineering Co., Jacksonville, $51,400; excavations, driving piling and putting down the foundations for the superstructure, together with necessary concrete work, F. W. Long & Co., Jacksonville, $106,940; Logan Concrete and Engineering Co., Jacksonville, $104,887; bid of the Foundation Co. of New York, in addition to foundation work, also covered construction of the pier bulkhead, which was only one received for pier.

Key West, Fla.—Council has voted to grant gas franchise for city to Starr & Reed.

Marietta, Ga.—Citizens have voted $20,000 bonds for installation of electric light plant.

Kendallville, Ind.—Council has asked bids for 400-kw generator for electric light plant; cost about $25,000.

Oakland City, Ind.—Bids will be asked for in near future for the construction of 8-in. pipe line to connect and supply natural gas to Oakland City, Winslow, Petersburg, Francisco and Princeton. B. Ayers, W. M. Frazee and J. H. Henley are interested.

Zionsville, Ind.—The Zionsville Water and Electric Light Co. is considering the installation of either oil engines or producer gas plant in place of present steam plant.—W. H. Palmer, Manager.

Lansing, Ia.—Council has granted franchise to Upper Iowa Power Co., Decorah, for installation of electric light plant.

Webster City, Ia.—Citizens will vote May 22 on $25,000 bonds for new equipment at light and power plant.

Fort Scott, Kan.—Fire has completely destroyed plant of Fort Scott Gas and Electric Co., leaving city in total darkness.

Quenemo, Kan.—I. C. Bushong, Ottawa, has been selected to prepare plans for electric light plant; cost $6,000.

Liberty, Ky.—Herren & Cundiff are considering erection of electric light plant.

Bangor, Me.—Substation of Bangor Railway and Electric Co., which furnished light to city, has been destroyed by fire.

Morris, Minn.—S. Stewart is planning installation of 200-hp. engine, new dynamo and other improvements at electric light plant.

Great Falls, Mont.—Great Falls Gas Co. will lay about three miles of gas mains in near future.—R. D. Dennison, Manager.

Anselmo, Neb.—Citizens will vote on installation of electric lights and water works.

Salem, N. J.—Council has under consideration plans of better method of lighting streets.

Tucumcari, N. M.—I. G. La Fite, Denver, Col., has purchased the local electric light plant from W. B. Buchanan, W. A. Jackson and W. H. Fuqua; about $10,000 will be spent in improvements.

New Hartford, N. Y.—Village Council is considering establishment of municipal electric light plant; contract with Utica Gas and Electric Co. expires May 31.

Smithtown, L. I., N. Y.—Long Island Lighting Co. and Port Jefferson Electric Light Co. have petitioned for franchise.

Utica, N. Y.—Plans have been prepared and will be considered by Board of Contract and Supply for construction and extension of city's electric subways.

Durham, N. C.—Southern Power Co., Charlotte, has decided to build a distributing station.

Cleveland, O.—The Euclid Dean Power Co., Cleveland, has been incorporated to erect power house for the generation of electricity for commercial purposes.—S. H. Selbert, Joseph Morgenstern, F. Ethel Whipp, Sidney S. Harvey and A. J. Harvey, Incorporators.

Dayton, O.—Bids will be received until noon May 26 for $25,000 bonds to light city.—G. W. Bish, City Auditor.

Greenspring, O.—Village Council is considering proposition for electric light plant.

Weleetka, Okla.—Citizens have voted $45,000 bonds for electric light plant and water works.

Morrisville, Pa.—Establishment of municipal electric light plant is being considered.

Brenham, Tex.—O. C. Orbeck, of Clifton, has asked for franchise for gas plant.

Floresville, Tex.—A. B. Crawford, San Antonio, is considering installing of electric light plant.

Falls Church, Va.—Arlington Electric Co. desires prices on transformers, lamps, cross-arms, pins, insulators, poles, etc., for probably territory of 7x½ to 2 miles.

Newport News, Va.—Citizens will vote June 24 on $150,000 bonds to build and operate electric light plant.

Chehalis, Wash.—Franchise has been granted to the Twin City Light and Traction Co, and building of power house is being considered; cost $75,000.—Frank Crown, Chief Engineer.

Goldendale, Wash.—The Pacific States Electric Co., Portland, has purchased electric light plant of this city from H. W. Fellows; system will be extended and improved by the new owners this spring.

Winona, Wash.—M. W. Peckler, Winona, has purchased site and will build power plant to supply Endicott, La Crosse and Winona with light and power

Magog, Que., Can.—Electric light and power plant will be constructed at cost of about $100,000.—Pringle & Sons, Montreal, Engineers.

Melville, Sask., Can.—Ratepayers have passed $23,000 by-law for electric lights.

Sandwich, Ont., Can.—Franchise has been granted to Robert Stuart to build transmission line through city streets.

CONTRACTS AWARDED

Springfield, Mass.—By Municipal Building Commission for electric equipment of the new central heating and lighting plant, to the M. B. Foster Co., Boston, $10,500.

Plymouth, Pa.—Lighting streets, alleys, etc., of township for seven years, to Luzerne County Gas and Electric Co.

Ogden, Utah.—To new Merchants' Light and Power Co., an organization of Ogden business men, for furnishing electricity for 80 street lights, $4.75 a month per light.

BIDS RECEIVED

Barberton, O.—Lighting of city streets. Sun Vapor Street Lighting Co., Canton, only bidder; present contract with Mohican Oil and Gas Co. expires in June; bidder agrees to install 60 gas or gasoline lights of the latest design and 100 candle power for $19.81 per year for each lamp providing they are given a three-year contract.

FIRE EQUIPMENT

Helena, Ark.—Mathews & Fry have prepared plans for erection of $6,000 fire station.—Hugh Martin, Mayor.

Pasadena, Cal.—Citizens have voted bonds for fire department purposes, including purchase of engine.

San José, Cal.—Citizens will vote in June on $6,000 bonds for fire and police department.

Hartford, Conn.—Fire Committee has accepted plans by F. W. Whiton and John J. McMahon for erection of fire station at Market and Temple sts. for Engine Co. No. 3.

Norwich, Conn.—Board of Fire Commissioners has recommended purchase of auto combination chemical and hose wagon to cost $5,500.

East St. Louis, Ill.—Mayor Lambert has recommended establishment of four engine houses.

Wellsburg, Ia.—Fire department has been organized.—J. H. Kelly, Chief.

Bangor, Me.—Fire Chief Mason is urging need of 10,000 ft. of fire hose.

Lewiston, Me.—Board of Fire Commissioners has recommended purchase of auto truck.

Palmer, Mass.—Town needs fire alarm system.

Westfield, Mass.—Town will purchase fire auto.

Saginaw, Mich.—Board of Estimate has alowed $8,000 for purchase of auto fire engine.

Englewood, N. J.—Council is favorably considering purchase of auto apparatus for fire department. Councilman Wm. Conklin is interested.

West Orange, N. J.—Town Council is considering $15,000 bond issue for purchase of auto fire apparatus and extension of water system.

Albany, N. Y.—Erection of fire station for Steamer No. 2 is being urged.

Herkimer, N. Y.—Board of Trustees is favorable to improvement of apparatus of fire department.

Syracuse, N. Y.—Board of Contract and Supply has adopted resolution directing Secretary John J. Halloran to advertise for proposals to install apparatus for central office fire alarm system.

Portland, Ore.—City will sell bonds for building $125,000 steel fireboat; plans being prepared.

Oxford, Pa.—Addition will be erected to fire engine house.

Reading, Pa.—Rainbow Fire Co. has purchased building which wil be remodeled for use of Volunteer Firemen's Association.

CONTRACTS AWARDED

Sacramento, Cal.—City Trustees have decided to buy from Bowers Rubber Co. 3,000 ft. of hose and 80 poles for wires of the police and fire alarm system from R. B. Swain.

Pensacola, Fla.—Furnishing $1,500 worth of hose, to Frank Griffith, special agent for Eureka Hose Co., New York.

Evansville, Ind.—Furnishing hose, to the Gutta Percha Co., 500 ft., 85c.; to the Chicago Fire Hose Co., 1,000 ft., $1, and to New York Belting and Packing Co., 500 ft., $1.10.

Springfield, Mass.—Erecting addition to Pine st. fire station: General contract, O. C. Rivest, $21,700; heating, George H. McClean, $1,340; electric, Foster Electric Co., Boston, $968; plumbing, J. J. Cotter Co., $1,693.

Bozeman, Mont.—Furnishing 95-hp. auto fire engine, to Webb Fire Apparatus Co., St. Louis, Mo., $6,500.

Poughkeepsie, N. Y.—Furnishing 2,000 ft. Keystone hose, to Fabric Fire Hose Co., A. D. Francher, representative.

Cincinnati, O.—Building fire house on Eastern ave., to Cotteral Building Co.

Bradford, Pa.—Furnishing motor truck for Chief of the Department, to Garford Co., Elyria, $2,900.

Harrisburg, Pa.—Building Camp Curtin fire house on N. 6th st., to Thos. Ferree, $7,110.

Tacoma, Wash.—Furnishing fire hose: To Washington Rubber Co., Inc., 2,000 ft., $1,800; to The C. C. C. Fire Hose & Rubber Co., 2,000 ft., $1,800; to Hunt & Mottet Co., 2,000 ft., $1,800; to Palace Hardware Co., 1,000 ft., $1,000. To the International Power Co., for purchase and delivery of one-third size Amoskeag steam fire engine, with heavy oscillating platform, $4,850.

BIDS RECEIVED

Sacramento, Cal.—Furnishing automatic aerial truck, motor-driven, for the Fire Department: Graham-Murdock-Williams Co., truck to cost $12,150; Gorham Engine and Fire Apparatus Co. offered machine for $11,375; third bid was for truck to be drawn by horses.

BRIDGES

Hollister, Cal.—County Surveyor A. M. McCray has estimated cost of repairs to county bridges and the construction of two new bridges at $100,000.

Pasadena, Cal.—Citizens have voted bonds for erection of bridge.

San José, Cal.—Citizens will vote in June on $55,000 bonds for bridges and improvement of creeks.

Vacaville, Cal.—Bids will be received May 16 for the purchase of $15,300 bonds for concrete bridge and $2,500 for septic tank.—F. A. Steiger, Benicia, Engineer.

Mayo, Fla.—Boards of this and Severance counties have decided to build bridge across Suwanee River at Dowling Park; bids being asked.

Jesup, Ga.—Wayne County will vote $100,000 bonds to construct bridge across Altamaha River and build roads.

Westernport, Md.—Bids will be received May 23, noon, for $5,000 bonds to erect concrete bridge across George's Creek.—J. P. Miller, Chairman Finance Committee.

Mantua, N. J.—Turnpike Co. has instructed Engineer Cattel to prepare plans for concrete bottom bridge to be erected over Mantua Creek.

Massena, N. Y.—Bridge over the Raquette River on Depot road has been condemned by State Highway Department; estimates for concrete structure are being prepared; cost about $30,000.

Niagara Falls, N. Y.—Niagara Town Board has approved plan for bridge over the Cayuga Creek, concrete structure for which $3,500 has been set aside.

Whitesboro, N. Y.—State Highway Department has prepared plans for steel bridge, concrete pier and roadway over Sauquoit Creek.

Wilmington, N. C.—New Hanover County will vote May 31 on $50,000 of bonds for bridge and road improvements and construction.—D. McEachern, Chairman County Commissioners.

Dayton, O.—Bids will soon be asked for constructing the Wolf Creek bridge at the confluence of Miami River and Wolf Creek; cost is estimated at $17,000.—William A. Budroe, Clerk Department Public Service.

Toledo, O.—Plans will be prepared by the City Engineer for erecting bridge over Lake Shore Railroad on Summit st.

Altoona, Pa.—Commissioners of Blair County have appropriated $3,000 for repairs to seven county bridges.

Coatesville, Pa.—Chester County Commissioners are considering erection of bridge over Brandywine Creek.

Pittsburg, Pa.—County Commissioners have decided to erect $12,000 bridge across Pine Creek on Butler plank road in Shaler Township.—S. D. Foster, County Road Engineer.

York, Pa.—County Commissioners have decided to rebuild stone bridge at the mouth of Fishing Creek, between the Townships of Lower Windsor and Chanceford; plans are being prepared by W. R. Smith, County Engineer.

Germantown, Tenn.—Citizens will vote on $3,000 bonds for bridge construction, street and sidewalk improvement, etc.

CONTRACTS AWARDED

Jacksonville, Fla.—Repairing bridge over Big Pottsburg Creek, to J. E. Ivanoski, $2,700.

Boston, Mass.—To Lawler Bros. for building temporary draw at Dover st. bridge, $2,079; other bidders: George T. Rendle, $2,203.79; W. H. Ellis, $2,641; Engineer's estimate, $2,500.

Jersey City, N. J.—Building bridge over Morris Canal at Communipaw ave., by the Board of Freeholders, to Stillman, Delehanty and Ferris, $7,620; other bidders, Cement Paving Construction Co., $9,850; Joseph H. Cutley, $10,650; Bond & McNally, $10,800; F. W. Schwyers, $12,450.

Scranton, Pa.—Building nine new bridges and repairing another, by County Commissioners: Over Spring Brook Creek in Moosic, to York Bridge Co., $2,745; over Sulphur Creek, Mayfield, to T. C. Cummings, $580; over Mother Harding's Creek, Mayfield, to J. W. O'Brien & Son, $820; over creek near Glenburn Pond, Glenburn, to W. E. La Rue, $995; over Lily Lake Creek, Dalton, to W. E. La Rue, $395; over Kennedy's Creek, on road from Dalton to East Benton in North Abington, to Dingleberry & McLaughlin, $540; over outlet of Bassett's Pond, near George C. Gibbs' residence in Benton, to George H. Nichols, $500; over Gardner's Creek, near W. J. Biesecker's, Newton, to W. E. La Rue, $295; over Depew's Creek in Covington, to Edward Wise, $680; for repair of bridge over Wardell's Creek in Covington, to Edward Wise, $400.

Petersburg, Va.—Building four concrete bridges, to Coleman Construction Co.

MISCELLANEOUS

Huntsville, Ala.—Citizens have voted $100,000 bonds for erection of municipal hotel.

Auburn, Cal.—Board of Trustees is considering bonding of city for permanent improvements.

Oakland, Cal.—Citizens will vote June 6 on $500,000 bonds for purchase of site and erection of infirmary building.

Pasadena, Cal.—City Commissioners have voted $1,000 for establishing of a summer playground at Wilson School.

Pasadena, Cal.—Citizens have voted bonds for erection of addition to city hall.

Sacramento, Cal.—City Trustees have decided to advertise for bids for construction of a bandstand in the City Plaza to cost about $1,200.

Sacramento, Cal.—Mayor M. R. Beard has recommended erection of city jail.

San José, Cal.—Citizens will vote in June on $110,000 bonds for improvement of Alum Rock Park, $2,000 for public comfort stations, $50,000 for incinerator and $60,000 for police and fire department.

Pueblo, Col.—Need of 50-hp. auto police patrol is being urged.

Washington, D. C.—Argentine budget for 1911 makes provision for expenditure of about $42,500 on various public works, principal items with estimated cost being as follows: Purchase of two suction dredgers for port of Buenos Aires, $580,000; purchase of dredging plant for certain rivers, $550,000; building and furnishing of new Law Courts, $2,550,000; construction of new General Post Office, $430,000; new port at Mar del Plata, $2,960,000; construction work on various railways and purchase of rolling stock, etc., $19,325,000; construction of military barracks, $850,000; construction of port of Quequen, $775,000; extension of water supply and drainage works in Buenos Aires, $3,830,000; water supply and sanitary works in several towns in Provinces, $2,550,000; and construction of immigrants' hotels and homes, $1,375,000. Address No. 6659 Bureau of Manufactures.

Jacksonville, Fla.—City Engineer Philip Prioleau has submitted detailed plans for proposed improvements in Ingleside Park, Riverside; $2,500 available.

Freeport, Ill.—Chief of Police Root has asked for police telephone system and auto runabout.

Boston, Mass.—Council is considering $80,000 appropriation for court house and police station for Charlestown and $65,000 for court house for Boston.

Newark, N. J.—Upon recommendation of Finance Committee Council has voted to issue bonds to erect almshouse on a new site, building for the Board of Health, city dispensary and clinics, central fire station with accommodations for two companies housed at present in Branford place, police station in Sixth Precinct, fire truck house in the Sixteenth Ward, house for nurses of the City Hospital and public baths to cost $125,000.

Trenton, N. J.—Council has adopted resolution permitting Harbor Board to issue $50,000 bonds to carry out plans for acquiring land along Delaware River front for establishing docks and harbors.

Albany, N. Y.—Council is considering purchase of site for addition to Police Station No. 1, Arch and Broad sts.

New York, N. Y.—Plans have been filed by Architects Hoppin & Koen, 244 5th ave., for erection of four-story police station for Eighth Precinct at corner of Beach and Varick sts.

Philadelphia, Pa.—Mayor Reyburn has asked Councils to authorize him to engage an architect and execute contract for the erection of municipal convention hall in Fairmount Park.

Henning, Tenn.—City has decided to erect jail.

Omak, Wash.—Town is considering bond issue for public improvements.

CONTRACTS AWARDED

Waycross, Ga.—Erecting county jail, to Pauly Jail Co., St. Louis, about $34,000.

Boston, Mass.—Building wooden landing piers in Charles River, Lower Basin, Boston, to Lawler Bros., Charlestown, $7,380.

Bozeman, Mont.—Sprinkling Main st., to S. Collett, $113.50 per month.

Hightstown, N. J.—Sprinkling streets for coming season, to J. Ely Robbins, 37c. per hour.

Cincinnati, O.—To C. F. Runck, Jr., for building Elm st. concrete steps, $3,074.

Cincinnati, O.—Shelter house and comfort station, by the Board of Park Commissioners, to William Miller & Son, Pearl and Martin sts., city, $9,373.

Reading, Pa.—By Board of Public Works, to John A. Rauen to clean streets for five years.

Galveston, Tex.—Installation of a garbage crematory here, to the Specialty Engineering Co., Houston, $8,500.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
			STREET IMPROVEMENTS	
Pennsylvania...	Aliquippa.....	May 12, 8 p.m.....	Grading, paving with vitrified repressed brick or block, curbing, storm sewer catch basins and castings, paving headers, granite street crossings and cross plates on various streets.....	R. R. Owens, Boro. Engineer.
Florida.....	St. Augustine....	May 17, 7:30 p.m....	Curbing of Bay street with granite.....	John M. G. Carrera, City Clerk.
Ohio.....	Akron.....	May 19, noon.....	Paving portions of various streets.....	John W. Gauthier, Dir. Pub. Serv.
Indiana.....	Evansville.....	May 20, 10 a.m.....	Laying and repairing concrete and brick sidewalks.....	Simon A. Bartholome, Clk. B.P.Wks.
Texas.....	Galveston.....	May 22, 11 a.m.....	Remodeling the Seawall boulevard.....	John M. Murch, County Auditor.
Montana.....	Great Falls.....	May 22.....	Sidewalk construction from June 1 to Dec. 31.....	City Clerk.
			SEWERAGE	
Ohio.....	Akron.....	May 19, noon.....	Constr. main and lateral sewers in various streets.....	John W. Gauthier, Dir. Pub. Serv.
New York.....	Syracuse.....	May 22.....	Constr. the Colvin street trunk sewer and several lat. sewers..	Geo. J. Metzpleasure, City Clerk.
			WATER SUPPLY	
Missouri.....	St. Louis.....	May 19, noon.....	Furn. cast-iron-coated water pipe, special castings, stop valves, post fire plugs and post fire plug top parts.....	Board Public Improvements.
New York.....	Cortland.....	May 25, 8 p.m.....	Constr. a standpipe or water tank 50 ft. high and having storage capacity of 1,000,000 gals.....	Board Water Commissioners.
Missouri.....	St. Louis.....	June 2, noon.....	Furn. detailed drawing, constructing and erecting at Low Service Pumping station two steam, turbine-driven centrifugal pumping units, complete with condensing apparatus.....	Board Public Improvements.
			FIRE EQUIPMENT	
New York.....	Syracuse.....	May 15.....	Installing automatic and semi-automatic fire alarm system..	Geo. J. Metzpleasure, City Clerk.
			MISCELLANEOUS	
Delaware.....	Dover.....	June 6, noon.....	Constructing wharf.....	Jas. T. Truax, Pr. Levy Crt., Kent Co.
Wisconsin.....	Racine.....	May 13, 10 a.m.....	Sprinkling various streets for season ending Dec. 1, 1911....	P. H. Connolly, Pres. Bd. Pub. Wks.

STREET IMPROVEMENTS

Pueblo, Col.—County Commissioners have $15,000 available for road improvements.

Jacksonville, Fla.—All bids have been rejected by County Commissioners for resurfacing Atlantic blvd. and St. John's ave. with asphalt macadam.

Goshen, Ind.—Estimates show cost of straightening the highway between Elkhart and Goshen to avoid many existing dangerous railroad crossings to be about $10,000; this figure would include bridge over Yellow Creek.

Duluth, Minn.—Council has passed resolution calling for expenditure of $3,000 on the Getchell road at West Duluth and $2,000 for improvement of the Sundby road.

Stillwater, Minn.—Council has directed the City Engineer to prepare estimates of the cost of constructing levee driveway and paving wharf in front of Lowell park with brick, cement or macadam.

Elephant Butte, N. M.—Plans have been prepared for macadamizing Main st.

Ventnor City, N. J.—Bids will be received May 17, 8 p. m., for $150,000 Ventnor ave. paving bonds.—E. S. Royal, City Clerk.

Cincinnati, O.—Plans and specifications for improvement of Crookshank road, from Muddy Creek road north to Gamble's place and thence to Bridgetown road, at an estimated cost of $18,706, have been approved by County Commissioners, as were also plans and specifications for repair of Indian Hill ave., from Plainville pike to Wooster pike, estimated to cost $9,930.

San Angelo, Tex.—Sterling County has voted $16,000 bonds for good roads.

Richmond, Va.—Council Committee on Streets has recommended $1,000,000 bond issue for street improvements.

Mount Vernon, Wash.—Council has formally selected asphalt as pavemenet to be used in improvement of Mount Vernon streets; besides the business district ,several blocks in residence sections will be paved.

Charleston, W. Va.—Retiring Commissioner of Streets J. B. White has recommended improvement of large number of streets.

CONTRACTS AWARDED

Boston, Mass.—To John Kelly & Co. for building with local stone macadam roadway in Corey road, $4,216.75; other bidders: J. C. Coleman & Sons Co., $4,588.50; R. J. Young & Co., $4,713.75; William J. Rafferty Co., $4,741.50; Engineer's estimate, $4,070; to Coleman Bros. for paving and regulating Haverhill st., $12,393.90; other bidders: Peter W. Hill, $12,525.40; F. S. & A. D. Gore Corporation, $12,865; John F. O'Connell, $12,633.80; F. H. Cowin Co., $12,610.40; R. J. Young & Co., $14,982.20; William J. Rafferty Co., $13,454.80; Connolly & Diamond, $12,900.60; C. W. Dolloff & Co., $12,968.70, Rockport granite; C. W. Dolloff & Co., $12,440.50, New Hampshire granite; Engineers' estimate, $15,400; to James Doherty for tar macadam roadway of local stone in Hazelton st., $4,463.85; other bidders, William J. Rafferty Co., $4,489.47; John Kelly & Co., $4,581.92; Connolly & Diamond, $4,795.65; Daniel E. Lynch, $5,269; Engineer's estimate, $5,700.

Bluffton, Ind.—By County Commissioners, four roads; to George W. Tabor, the A. J. Miller road in Rockcreek Township, $3,759; to J. M. Neff, the W. M. Beck stone road in Jefferson Township, $9,767; to Charles Nash, the Conrad Gallmeyer stone road in Jefferson, $5,669; to Alexander & Crosbie, Settle gravel road in Nottingham Township, $2,209.

Marion, Ind.—Improvement of Mulberry st. and paving of Garfield st., to Wm. Yates.

Louisville, Ky.—Reconstruction of north side of Broadway, Fourth ave. to Campbell st., to S. S. Saxton Co., with asphalt, $20,739; other bidders: American Standard Asphalt Co., $27,140; G. W. Gosnell, $24,618, and the Barber Asphalt Co., $20,936.91.

Great Falls, Mont.—Work on boulevard, Special Improvement District No. 110, to F. E. Evans, $2,210.90; other bidders: Nilson & Smith, $2,732.52; C. J. Collins, $3,065.22, and H. N. Black & Son, $3,496.40.

Binghamton, N. Y.—Paving Water st., Court to Stuart st., to A. D. Osborne, with Corning block, $2.04 per yd.; straight curbing, 60c. per ft.; circular curbing, $1.25; catch basins, $60 each.

Hudson, N. Y.—Repaving Warren st., 3d to 7th, to Dollard & Heeran, Albany, with Jamestown brick, $23,235.94; laying new curbing, $280; relaying curbing, $750; for eight new catch basins and removing another, $450; total cost, including railroad's share, which is extra, $32,318.58.

Cincinnati, O.—Improvement of Loveland and Madeira road, Remington to Carnargo pike, to Wm. Keller, $15,440.

Cincinnati, O.—By Service Director Sundmaker: Dirhem ave. with brick, to J. M. Quill, $4,753.50; Ratterman st. with brick, J. M. Quill, $14,213, and Lischer ave., with brick, to J. M. Quill, $8,454.20; all brick will be supplied by Fultonham Brick Co. under new specifications.

Portsmouth, Va.—Paving streets, to Atlantic Bitulithic Company at total cost of $136,038.30.

Tacoma, Wash.—To N. A. Jones, for grading and constructing sidewalks, Improvement District No. 797, to N. A. Jones, $12,333; Dist. No. 800, to M. E. Langford, $2,949.

SEWERAGE

Thomaston, Ga.—Citizens have voted $50,000 sewerage and water works bonds.

Paterson Heights, N. J.—Plans are being prepared by Engineer Chapin, Akron, O., for sewerage system.

Cincinnati, O.—To Thos. P. Strack for sewering Atkinson st., $1,267.20.

Easton, Md.—Building sewers and sewage disposal works, to Heins & Hayman, Baltimore, Md., $37,011.78.—Clyde Potts, New York, Engineer.

Frankfort, N. Y.—Vrooman & Terry, Gloversville, have been selected as Engineers in charge of proposed sewerage system.

Mount Pleasant, Tex.—Citizens will vote on $17,000 bonds to install sewerage system.

Seattle, Wash.—Board of Public Works has rejected all bids for sewers on Eleventh ave. West; new figures will be asked on modified specifications.

CONTRACTS AWARDED

York, Pa.—Extension of storm water sewer on West Jackson and Vine sts., to General Supply & Construction Co.; West Jackson st., 12-in. terra cotta pipe, "Y's" and fittings, 90c. ft.; 24-in. pipe, etc., $1.75 ft.; removing rock, $3.45 cu. yd.; manholes, $35; inlets, $30; Vine st., 30-in. sewer, etc., $3.85 ft.; 12-in. sewer, etc., 90c. ft.; removing rock, $2.50 cu. yd.; manholes, $35; inlets, $30.

WATER SUPPLY

Proctor, Minn.—Proctor Water and Light Co. has been granted franchise to install water works plant.

Upland, Neb.—Citizens will vote on bonds for water works system.

Hawthorne, N. J.—Citizens will vote July 18 on establishment of water supply.

Farmington, N. M.—Citizens have voted $50,000 bonds to install water works system.

Mount Vernon, N. Y.—Board of Aldermen has decided to sink four artesian wells at once in Vernon Heights at cost of $4,000.

Lima, O.—Council has ordered the installation of temporary bleaching process at water works plant as a result of the recent compromise with the State Board of Health, which has ordered building a filtration plant which would have cost $500,000; cost of the temporary bleaching process will be but $400 and if it proves successful installation of complete system will cost but $5,000.

Wetumka, Okla.—Citizens have voted $10,000 bonds to install water mains.

CONTRACT AWARDED

Lakeview, O.—To Larkin Bros., Dayton, for erecting $25,000 concrete water tower.

LIGHTING AND POWER

New York, N. Y.—Plans have been filed with Bronx Bureau of Buildings for one-story brick governor house to be constructed for Consolidated Gas Company. W. Cullen Morris, Architect. Cost, $301,000.

Everett, Wash.—County Commissioners have granted to Everett Gas Company a franchise right for period of fifty years to lay and maintain gas mains along and under county roads between Snohomish and Monroe.

FIRE EQUIPMENT

Paterson, N. J.—Architect William T. Fanning is preparing plans for two new fire houses, one of which will be located at 95 and 97 Grand st. and the second at North Third and Clinton sts.; both will house automobile fire-fighting apparatus.

Rome, N. Y.—Fire Chief Briggs has recommended purchase of 1,000 ft. of hose, 24 pr. of boots and 24 rubber coats.

CONTRACT AWARDED

Norfolk, Va.—By Board of Control, to Gamewell Fire Alarm Company, New York, for fire alarm and police signal boxes in the

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Ninth Ward amounting to $1,750; same company has contract also to supply city with other electrical equipment, including ten circuit fire alarm storage battery switchboard; the contract amounts to $2,-325.

BRIDGES

Cincinnati, O. — County Commissioners have ordered plans and specifications for repair of culverts, bridges and washouts on Clough Pike at cost of $23,093.

CONTRACTS AWARDED

Los Angeles, Cal.—Building three bridges across Los Angeles River, to Mercereau Bridge & Construction Co., $3,200.

Bluffton, Ind.—By County Commissioners for 14 concrete bridges which will cost total of $6,447.30; to firm of Crosbie & Johnson, of this city; nine to Thomas Turpin, of Liberty Center, and to George Japp, Fort Wayne, one of two large bridges, $1,-099.

Richmond, Ind.—Bridges and repairs on old ones amounting in all to $15,739: Beeler bridge in Center Township, to Isaac E. Smith, $7,350; to T. J. and H. F. Burke for four structures, Simpson bridge $3,747, the D. W. Harris bridge, Clay Township, $1,974; the Lannerd bridge, Jackson Township, $1,949, and the Mary A. Wright structure, Abington Township, $419; repairing of canal bridge east of Hagerstown, to Marshall M. Knapp, $300.

Muskogee, Okla.—Fifteen of the proposed new county bridges will be built by Vincennes Bridge Company, of Vincennes, Ind.; four by Midland Bridge Company of Kansas City; three by the Muskogee Iron Works, and one by the Massilon Bridge Company.

MISCELLANEOUS

Pacific Grove, Cal.—Citizens are considering bond issue for storm waterways, parks, city hall and fire protection.

South Bend, Ind.—Elaborate system of drives and boulevards in connection with city park system under supervision of a competent landscape artist is being considered by Board of Park Commissioners.

Bath, N. Y.—Village Trustees have decided to erect proposed village hall at North Fulteney Park.

New York, N. Y.—The item published in our issue of Apr. 26 to the effect that the Kindling Machinery Co. had been awarded a contract for 150 street cleaning machines, although obtained from a source which we have usually found very reliable, was an error and entirely without foundation.

Olean, N. Y.—Citizens have defeated proposition to issue $176,500 bonds for municipal market, conduits and electric light plant.

Cleveland, O.—Plans for great west side tunnel improvement is about to be begun by the city at cost of $1,000,000 have been announced by Chief Engineer Schulz, of Water Department, who will be in charge of work.

Carroll, O.—Architect E. H. Rickett, Columbia Bldg., Columbus, has prepared plans for erection of two-story town hall.

Tulsa, Okla.—Citizens will soon vote on $100,000 bonds for purchase of park sites.

Wetumka, Okla.—Citizens have voted $5,000 bonds to erect city hall.

Albany, Ore.—Council has purchased site at 2d and Ellsworth st. for erection of city hall.

Bristol, Pa. — Council has authorized Police Committee to purchase equipment and install electric police alarm system.

Kyle, Tex.—Plans are being prepared for erection of city hall.

Nacogdoches, Tex.—Citizens have voted $93,000 bonds to erect court house and jail.

San Angelo, Tex.—Sterling County has voted $10,000 bonds to erect jail.

Harrisonburg, Va.—Citizens will vote May 23 on purchase of properties for park purposes.

CONTRACT AWARDED

Gloucester, Mass.—Building sea wall for sections 3 and 4 of esplanade on Western ave., to Jos. W. Rice, $2,756.

BIDS RECEIVED

Garwood, N. J.—Erection of town hall: H. J. Wenze, Iberger Construction Co., Phillipsburg, $15,890; C. L. Bell, Cranford, $17,329; Lammering & Devine Co., Elizabeth, $16,890; M. Byrnes Building Co., Elizabeth, $16,310; A. B. Johnson, New York, $18,086; Detz Engineering Co., New York, $16,490; Schaefer & Newman, Garwood, $16,207.

Brooklyn, N. Y.—Kelley & Kelley, 45 E. 42d st., New York City, lowest bidder for laying out Bushwick Playground, Putnam ave. and Woodbine st., $23,234.

PROPOSALS

ELECTRIC LIGHTING

Amsterdam, N. Y.

The City will receive sealed bids for lighting its streets and public places in accordance with specifications on file in the City Clerk's Office. Bids to be opened on June 6, 1911, 8 o'clock P. M. Bids shall be filed by delivering the same to the City Clerk at the meeting of the Common Council, June 6, 1911. Each bidder shall accompany his bid by a certified check for $5,000, payable to the Mayor of Amsterdam. The Common Council reserves the right to reject any or all bids or accept any bid.

THOS. J. HAZLETT,
Clerk.

PAINTING BRIDGES

Little Falls, N. Y.

Sealed proposals will be received by the undersigned, on behalf of the Board of Public Works of the City of Little Falls, N. Y., at the office of said Board, until the 19th day of May, 1911, at 9:30 o'clock A. M., for painting four Mohawk River bridges according to specifications therefor now on file with the City Engineer. All bids to be tendered on forms prescribed by the Board of Public Works, which may be had on application to the City Engineer, and must be accompanied by a certified check of $50.00, payable to the order of the City Treasurer, deposited on the condition that the same shall be considered as forfeited to the City of Little Falls as liquidated damages, unless the party whose bid is accepted shall appear at the office of said Board within three days after notice that his bid has been accepted and execute the contract therefor and give a bond as required by law.

Each bid shall contain the name of at least two persons who are freeholders, or a solvent surety company, as the bidders proposed sureties for the faithful performance of the contract if awarded to him.

The Board of Public Works reserve the right to reject any or all bids.

MATTHEW A. LEAHY,
City Clerk.

Dated April 24, 1911.

CONCRETE WALKS

Great Falls, Montana.

Sealed proposals will be received by the City Clerk, Great Falls, Montana, until 8 o'clock P. M., May 22, 1911, for the construction of all concrete walks that are ordered to be constructed by the City Council, from June 1st, 1911, to December 31st, 1911.

The following approximation is the amount estimated that the Council will order to be constructed:

70,000 square feet of 5-Foot Walk.
10,000 square feet of 15-Foot Walk.

Specifications may be obtained from City Engineer.

Council reserves right to reject any or all proposals.

W. P. WREN,
City Clerk.

PROPOSALS

NOTICE TO CONTRACTORS

Police Signal, Fire Alarm and Telephone System

Passaic, N. J.

By direction of the City Council proposals will be received by the City of Passaic, New Jersey, from contractors for the manufacture, delivery and installation of a Police Signalling System, Fire Alarm Equipment and Municipal Telephone Exchange for the City of Passaic, in accordance with the conditions and specifications and drawings on file in the office of the City Clerk, from whom blank form of proposal may be obtained.

All proposals must be for the entire work, as no separate bids will be received for any part of the work.

All proposals must be accompanied by a surety bond or a certified check payable to the City of Passaic in a sum equal to at least 2 per cent of the amount of the bid.

The successful bidder will be required to give a surety bond in a responsible surety company for the full amount of the contract for the faithful performance of the contract and for indemnity against suits or claims for infringement of patents and as security that he will guarantee all workmanship and materials for a period of five years.

Every bidder must furnish satisfactory evidence of his experience and equipment, together with list of similar systems installed.

All bidders must state number of working days required to complete work, and damages of ten dollars per day will be stipulated in the contract for every day's delay over the time agreed upon for the completion of the work.

No bid will be considered unless samples of the following are submitted therewith:

One multiple circuit puncturing register.
One automatic time and date stamp.
One take-up reel.
One central station flash light equipment.
One police box.
One flash light.
One flash light controller.
One fire alarm box.
One automatic fire alarm repeater.

All bids must be enclosed in a sealed envelope endorsed on the outside "Proposal for Police Signaling System, Fire Alarm Equipment and Municipal Telephone Exchange," and must be delivered to the City Clerk or his deputy on or before Friday, May 19, 1911. No bid will be received after 8:00 p. m.

The City of Passaic reserves the right to reject any or all bids.

M. B. MATTHEWS,
Chairman Committee on Public Safety.
THOMAS R. WATSON,
City Clerk.

(26-3-10)

FIRE ALARM STORAGE BATTERY

Oil City, Pa.

The fire alarm system of the city of Oil City, Pa., is that of the Gamewell Fire Alarm Telegraph Company with a two-circuit gravity battery.

The City wishes to replace this battery by installing a four-circuit storage battery with switchboard complete.

Proposals will be received by the undersigned up to May 19, 1911, at 7:30 o'clock P. M., for installing such a battery and switchboard. Bidders must furnish plans and specifications of their proposed battery and switchboard.

The City reserves the right to reject any or all bids.

C. W. MULLALLEY,
City Controller.